HYPERIIDEA (CRUSTACEA: AMPHIPODA) KEYS TO SOUTH AFRICAN GENERA AND SPECIES, AND A DISTRIBUTION LIST

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(With 16 figures)

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Introduction

It is twenty-nine years since the late Dr. K. H. Barnard published the first comprehensive keys to the South African genera and species of Tanaidacea, Isopoda and Amphipoda. The intervening years have seen, exemplified in the contributions of South Africa to the International Geophysical Year (NGY, 1957–1958) Programme and the International Indian Ocean Expedition (IIOE) as well as the Routine Programmes of the Division of Sea Fisheries, the most intensive sampling of the oceanic marine environment round South Africa that has ever taken place.

A direct result of this was a considerable increase in the volume of zooplankton material available for study, which resulted in a similar increase in the

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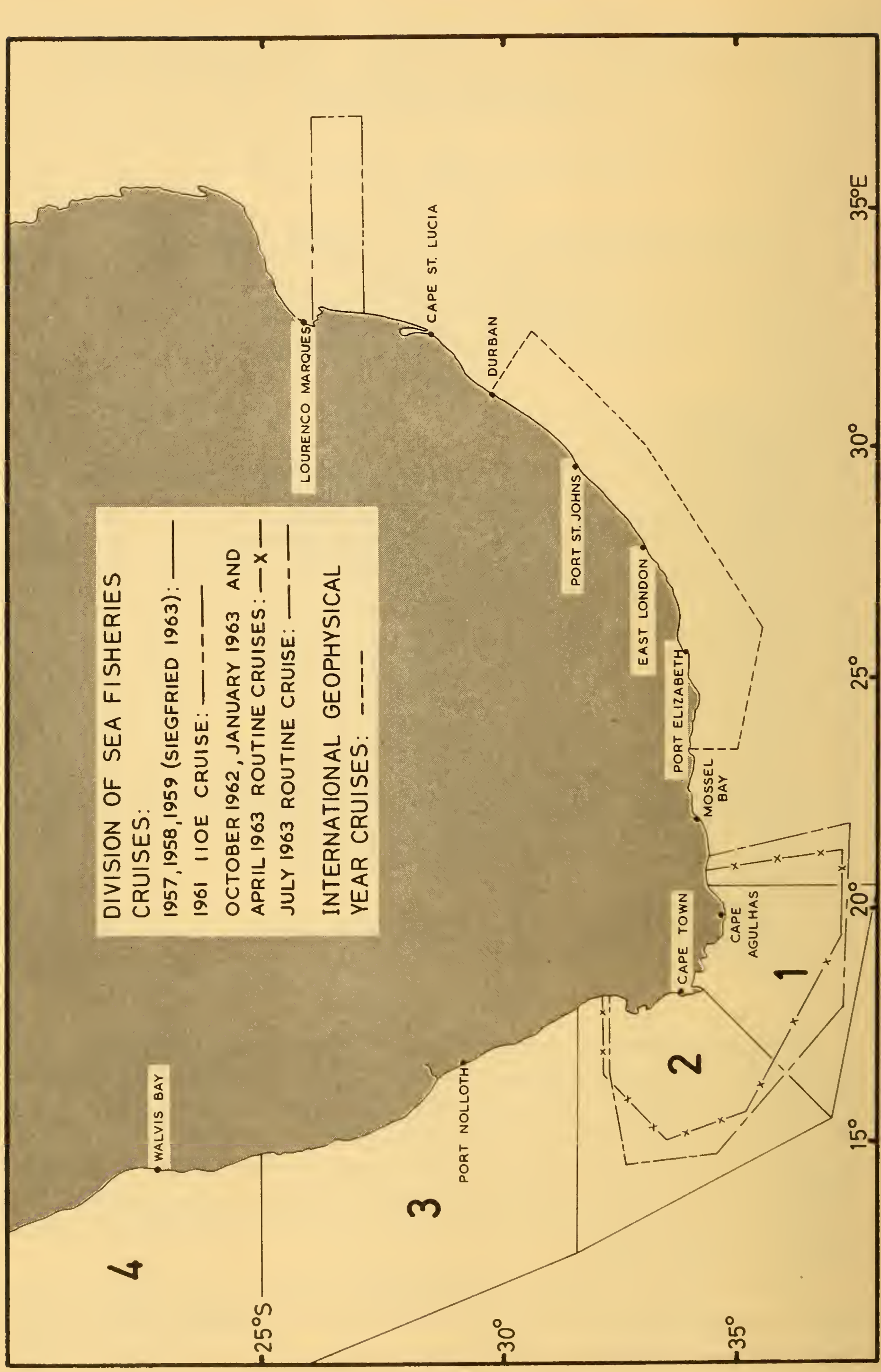
DIVISION OF SEA FISHERIES CRUISES:
1957, 1958, 1959 (SIEGFRIED 1963): ——
1961 IIOE CRUISE: — - — -
OCTOBER 1962, JANUARY 1963 AND APRIL 1963 ROUTINE CRUISES: —x—
JULY 1963 ROUTINE CRUISE: — - —
INTERNATIONAL GEOPHYSICAL YEAR CRUISES: - - - -
LOURENCO MARQUES
CAPE ST. LUCIA
DURBAN
PORT ST. JOHNS
EAST LONDON
PORT ELIZABETH
MOSSEL BAY
CAPE AGULHAS
CAPE TOWN
PORT NOLLOTH
WALVIS BAY
1
2
3
4
25°S
30°
35°
15°
20°
25°
30°
35°E

Fig. 1. Areas within South African waters investigated during oceanographic cruises in the years 1957 to 1963.

number of recorded hyperiid amphipod species (of 105 now recorded, 26 are new to South African waters), as well as vastly increased numbers of records for each species. It was for these reasons that a new distribution list and keys to the families, genera and species of South African hyperiid amphipods were compiled.

Material and Methods

The material used by the present author was collected during the International Geophysical Year cruises of S.A.S. *Natal* (hereafter referred to as the NGY cruises), the first SCOR–UNESCO International Indian Ocean Expedition Cruise of R.V. *Africana II* of the Division of Sea Fisheries and the cruises of R.V. *Africana II* and R.V. *Sardinops* made in October 1962, January 1963, April 1963 and July 1963, under the Routine and Extended Routine Programmes of the Division of Sea Fisheries. These cruises contributed 502 samples with hyperiids, which samples yielded approximately 9 000 specimens.

All samples used were obtained using nets of the 'Discovery' pattern, and although nets with mouth apertures of 70 cm, 100 cm and 200 cm were used at various times, most of the material originated from samples collected with the 100 cm net. The latter was hauled horizontally over a depth range of from five metres to the surface and obliquely from 150 metres to the surface.

The South African records for the check list were augmented with data obtained from publications relevant to the area under consideration which was defined as that south of latitude 20° South and up to 320 km from the coast (measured normal to the coast). Where records were rare or scattered over a large area, each was referred to the degree square in which it occurred. The latter was designated in terms of the latitude and longitude co-ordinates of the left upper corner. If records were particularly numerous in a given area or positions were not given for the original stations the distribution of the species was stated in terms of the area(s) in question (this procedure had to be adopted with the data of Siegfried (1963), which only contained position references where species were rare).

In order to gain some idea of the world distribution of the species it was decided to list as many as possible of the records of various authors (designated by numbers indicating the author and the page on which the record occurred). It is not claimed that the list is complete.

As a result of the wide distribution of many hyperiids a great deal of confusion exists in the taxonomy of many species. For this reason, references are given to publications containing the most complete synonymies and/or discussions of these where the degree of confusion merits this. It must be emphasized that the references are not the most recent but rather the most complete in many cases.

In so far as they concern South African records of species, depth ranges of occurrence have only been given where these are 300 metres or less. This limitation was imposed because of the practice of the earlier expeditions of hauling plankton nets through water columns of 1 000 metres and more, thus destroying any depth distinction between epipelagic and mesopelagic forms.

The keys published cannot be claimed to be completely original. Where only minor changes have been made to earlier authors' keys the original authors are acknowledged. In all other cases an attempt has been made to incorporate the observations of the present author. In the keys to the Lanceolidae and Scinidae, species not yet recorded from South Africa have been included and appear in parentheses. This has been done in anticipation of future additions to the fauna, while at the same time obviating the introduction of an unnecessarily artificial character into these keys. The drawings for the keys have, as far as possible, been made from actual specimens using a Zeiss (West Germany) Abbé drawing apparatus mounted on a stereomicroscope. Where this was not possible, the best published drawings were reproduced with acknowledgements.

KEY TO THE FAMILIES OF SOUTH AFRICAN HYPERIID AMPHIPODA

1.	Mandible without palp		2
	Mandible with palp		6
2.	Uropod 2 absent	*Cystisomidae*	(p. 34)
	Uropod 2 present		3
3.	Uropod inner rami fused with peduncles; uropods 1 and 2, outer rami reduced to spines	*Scinidae*	(p. 29)
	Uropod inner rami not fused with peduncles; uropods 1 and 2, outer rami not reduced to spines		4
4.	Pereiopod 3, 5th joint expanded or elongate and variably toothed with 6th and 7th joints folding against it	*Phronimidae*	(p. 36)
	Pereiopod 3, 5th joint unmodified with 6th and 7th joints not folding against it		5
5.	Gnathopod 1, 2nd joint longer than combined length of 3rd to 7th joints	*Paraphronimidae*	(p. 34)
	Gnathopod 1, 2nd joint shorter than combined length of 3rd to 7th joints	*Dairellidae*	(p. 36)
6.	Uropods lack rami	*Phrosinidae*	(p. 38)
	Uropods normal, biramous		7
7.	Pereiopod 4, 3rd joint inserted subterminally on 2nd joint		9
	Pereiopod 4, 3rd joint inserted terminally on 2nd joint		8
8.	Pereiopod 5, all joints present		11
	Pereiopod 5, reduced to 1st and 2nd joints plus rudiments of joints 3 to 7	*Pronoe* (*Pronoidae*)	(p. 39)
9.	Mandibular palp, 2nd joint less than half length of 1st joint	*Pronoidae*	(p. 39)
	Mandibular palp, and joint greater than half length of 1st joint		10
10.	Pereiopod 3, 3rd joint inserted terminally on 2nd joint; pereiopod 5 with all joints usually; flagellum of antenna 2, male, 4th joint half to three-quarters length of 3rd joint	*Parascelidae*	(p. 44)
	Pereiopod 3, 3rd joint inserted in a terminal notch or subterminally on 2nd joint; pereiopod 5 reduced to 1st and 2nd joints plus variable number of rudiments of 3rd to 7th joints; flagellum of antenna 2, male, 3rd and 4th joints subequal	*Platyscelidae*	(p. 44)
11.	Pereiopod 4, 4th joint about twice width of 3rd and 5th joints	*Lycaeopsidae*	(p. 39)
	Pereiopod 4, 4th joint equal in width to 3rd and 5th joints		12
12.	Pereiopods 3 to 5, 7th joint covered by hooded process of 6th joint	*Lanceolidae*	(p. 29)
	Pereiopods 3 to 5, 7th joint not covered by hooded process of 6th joint		13
13.	Flagellum of antenna 1, 1st joint large and more than three times combined length of rest of joints		14

Flagellum of antenna 1, 1st joint small to medium sized and many times shorter than combined length of rest of joints .. .. *Hyperiidae* (p. 34)
14. Flagellum of antenna 1, 1st joint straight with 2nd terminally inserted on it *Vibiliidae* (p. 34)
Flagellum of antenna 1, 1st joint curved with 2nd subterminally inserted on it .. 15
15. Mandibular palp, 2nd and 3rd joints subequal; rostrum present .. *Oxcephalidae* (p. 42)
Mandibular palp, 1st and 3rd joints subequal; rostrum absent 16
16. Inner rami of uropods, not fused with peduncles; gnathopods 1 and 2 chelate *Brachyscelidae* (p. 41)
Inner rami of uropods, one or more pairs fused with peduncles; gnathopods 1 and 2 simple or tending to subchelate .. .. *Lycaeidae* (p. 39)

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN LANCEOLIDAE

1. Eyes medium sized; 'reflecting cups' present adjacent to eyes *Scypholanceola vanhoeffeni*
Eyes small; no 'reflecting cups' present .. .. *Lanceola* 2
2. Pereiopod 4 longer than peraeon 3
Pereiopod 4 shorter than peraeon 4
3. Peduncle of uropod 3 longer than telson .. .. *L. serrata*
Peduncle of uropod 3 equal to length of telson .. .. .. *L. pacifica*
4. Pereiopod 2 equal to the combined length of 1st to 5th joints of pereiopod 4 (*L. felina*)
Pereiopod 2 subequal to pereiopod 4 .. .. (*L. clausi*)

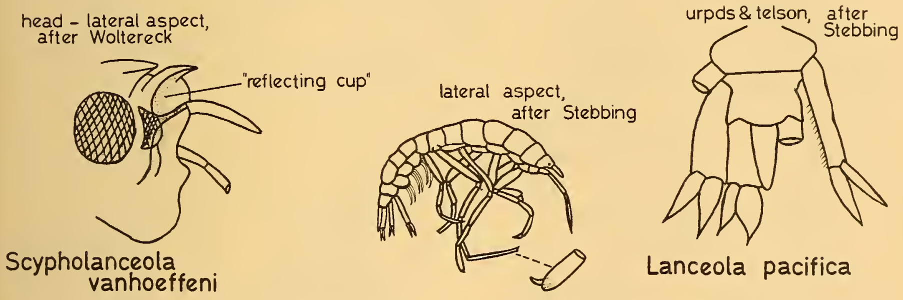
head - lateral aspect, after Woltereck
"reflecting cup"
Scypholanceola vanhoeffeni
lateral aspect, after Stebbing
urpds & telson, after Stebbing
Lanceola pacifica

FIG. 2. Family *Lanceolidae*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN SCINIDAE (modified from Hurley, 1956, after Wagler, 1926)

1. Terga of body segments produced in erect middorsal spines; peraeon segments 1 and 2 free .. .. *Ctenoscina*
9 middorsal spines .. .. *C. brevicaudata*
Terga of body segments without middorsal spines .. .. *Scina* 2
2. All appendages, especially antenna 1, pereiopod 3, and uropods greatly elongated *S. stenopus*
All appendages not greatly elongated 3
3. Gnathopods 1 and 2, 6th joint anteriorly produced beyond insertion of 7th joint; 6th joint of gnathopod 1, posterior margin toothed; 6th joint of gnathopod 2, anterior margin toothed .. .. *S. marginata*
Gnathopods 1 and 2, 6th joint not anteriorly produced beyond insertion of 7th joint 4
4. Pereiopod 3, anterior margin of 2nd joint smooth 5
Pereiopod 3, anterior margin of 2nd joint with at least one distal tooth 8
5. Pereiopod 3, posterior margin of 2nd joint smooth, anterodistal angle of 2nd joint with a strong spine 6

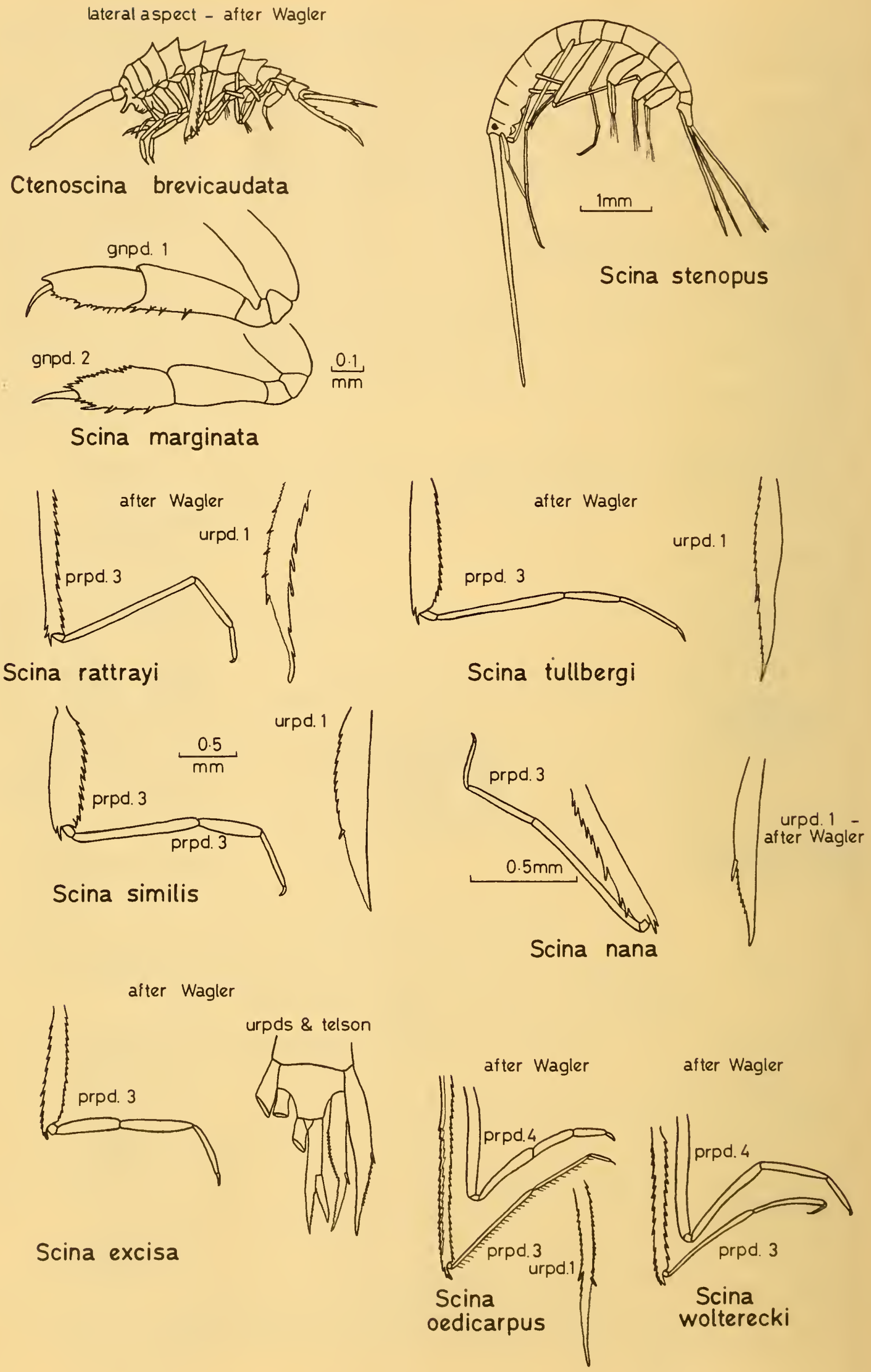

FIG. 3. Family *Scinidae*

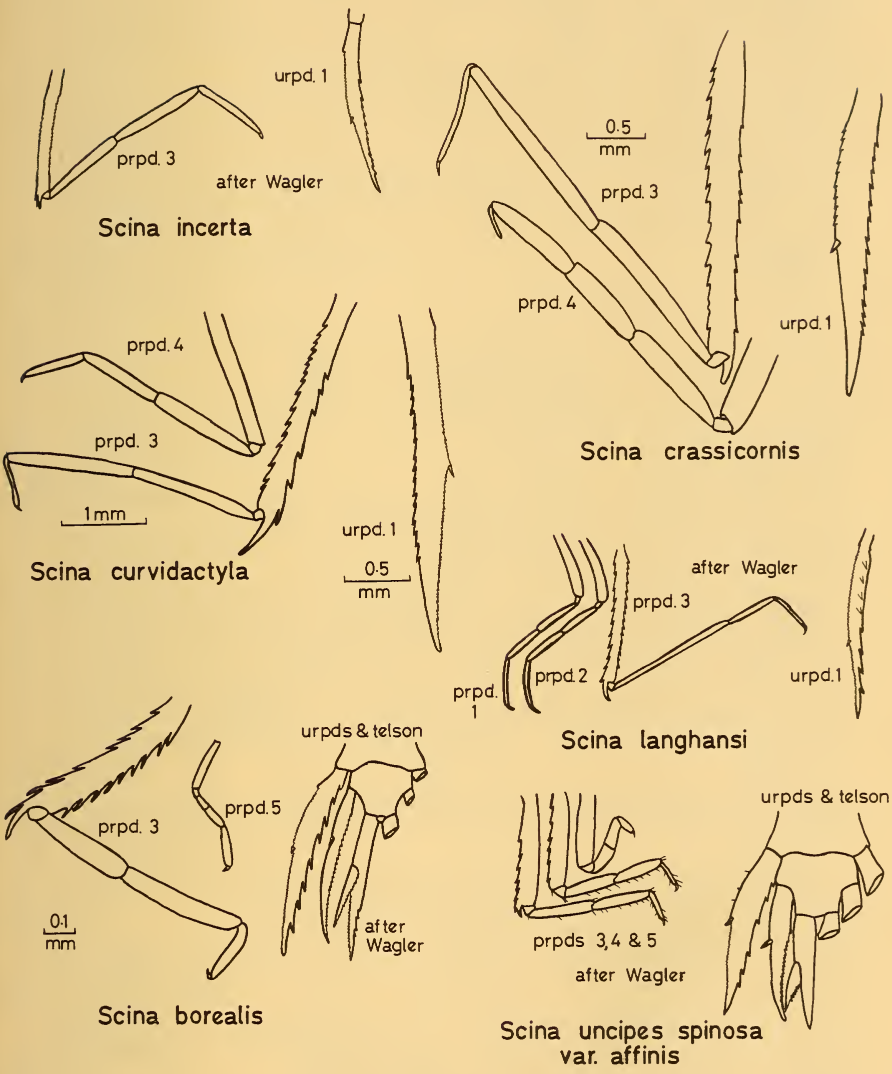

FIG. 3 (*cont.*). Family *Scinidae*

Pereiopod 3, posterior margin of 2nd joint toothed, anterodistal angle of 2nd joint with a weak spine 7

6. Pereiopod 3, outer surface of 2nd joint with about 8 teeth .. (*S. armauer-hanseni*)

Pereiopod 3, outer surface of 2nd joint smooth .. .. .. (*S. stebbingi*)

7. Uropod 1, inner margin smooth .. .. .. (*S. latifrons*)

Uropod 1, inner margin toothed .. .. .. (*S. inermis*)

8. Pereiopod 3, anterior margin of 2nd joint only distally toothed 9

Pereiopod 3, anterior margin of 2nd joint toothed entire length 14

9. Uropod 1, inner margin smooth 10

Uropod 1, inner margin toothed .. .. .. *S. rattrayi*

10. Outer ramus of uropod 1 very long, about two-thirds length of inner ramus and twice length of outer ramus of uropod 2; pereiopods 3 and 4, 7th joint with a long seta from 6th joint over it .. .. .. (*S. setigera*)

Outer ramus of uropod 1 not very long and not longer than outer ramus of uropod 2 11

11. Second joint of pereiopod 3 equal to combined length of 3rd to 7th joints (*S. alberti*)

Second joint of pereiopod 3 not a great deal longer than 4th joint 12

12. Outer ramus of uropod 1 about one-tenth length of peduncle .. *S. similis*

Outer ramus of uropod 1 about one-sixth length of peduncle 13

13. Uropod 1, outer margin of peduncle smooth .. .. .. *S. nana*

Uropod 1, outer margin of peduncle finely toothed .. .. *S. tullbergi*

14. Inner margin of uropod 1 smooth 15

Inner margin of uropod 1 toothed 18

15. Outer ramus of uropod 1 long, half length of peduncle .. .. (*S. typhlops*)

Outer ramus of uropod 1 short, one-sixth (or less) length of peduncle 16

16. Second joint of pereiopod 3, teeth on anterior and posterior margins subequal; telson half length of peduncle of uropod 3 .. .. .. (*S. pusilla*)

Second joint of pereiopod 3, teeth on anterior margin larger than those on posterior margin; telson less than one-third of length of peduncle of uropod 3 17

17. Second joint of pereiopod 3 shorter than combined length of 4th and 5th joints; inner ramus of uropod 2 curves inwards .. .. *S. excisa*

Second joint of pereiopod 3 longer than combined length of 4th and 5th joints; inner ramus of uropod 2 does not curve inwards .. .. (*S. damasii*)

18. Inner margin of uropod 1 with one large tooth and fine teeth proximal and distal to it 19

Inner margin or uropod 1 with teeth subequal, fine or coarse 20

19. Pereiopod 4 subequal in length to pereiopod 3, slender; 7th joint of pereiopod 4 small .. .. .. *S. woltereckí*

Pereiopod 4 shorter than combined length of 1st to 4th joints of pereiopod 3; 7th joint of pereiopod 4 about one-third length of 6th joint .. *S. oedicarpus*

20. Inner margin of uropod 1 with usually more than 12 fine teeth 21

Inner margin of uropod 1 with a maximum of 12 large teeth 24

21. Antenna 1 longer than peraeon, subequal in length to pereaeon plus pleon; 6th joint of pereiopod 3 shorter than, or subequal in length to 5th joint; 7th joint of pereiopod 3 very short 22

Antenna 1 subequal in length to peraeon; 6th joint of pereiopod 3 longer than 5th joint; 7th joint of pereiopod 3 half length of 6th joint .. (*S. lepisma*)

22. Sixth joint of pereiopod 3 less than half length of 5th joint 23

Sixth joint of pereiopod 3 subequal in length to 5th joint .. .. *S. incerta*

23. Seventh joint of pereiopod 4 almost one-third length of 6th joint; 4th joint of pereiopod 4 subequal in length to 6th joint .. .. .. *S. crassicornis*

Seventh joint of pereiopod 4 less than one-eighth length of 6th joint, hook-like; 4th joint of pereiopod 4 twice length of 6th joint .. .. *S. curvidactyla*

24. Antenna 1 longer than peraeon, subequal in length to peraeon plus pleon .. 25

Antenna 1 subequal in length to peraeon 26

25. Fourth joint of pereiopod 3 three times length of 6th joint; anterodistal angle of 2nd joint of pereiopod 3 with a short smooth spine; pereiopods 1 and 2, 4th joint equal in length to 6th joint .. .. .. *S. langhansi*

Fourth joint of pereiopod 3 subequal in length to 6th joint; anterodistal angle of 2nd joint of pereiopod 3 with a strong spine toothed on the anterior and posterior margins; pereiopods 1 and 2, 4th joint two-thirds length of 6th joint (*S. vosseleri*)

26. Fourth joint of pereiopod 3 subequal in length to 5th joint; uropod 2, outer margin of peduncle and inner ramus smooth; uropod 3, inner margin of peduncle smooth 27

Fourth joint of pereiopod 3 twice length of 5th joint; uropod 2, outer margin of peduncle and inner ramus finely toothed; uropod 3, inner margin of peduncle with large teeth . . . . (*S. antarctica*)

27. Pereiopod 5 slender, not longer than combined length of 1st to 3rd joints of pereiopod 3 . . . . *S. borealis*

Pereiopod 5 stout, subequal to the combined length of 1st to 4th joints of pereiopod 3 28

28. Pereiopods 3 and 4 are thickly setose . . . . (*S. pubera*)

Pereiopods 3 and 4 have few hairs . . . . . . *S. uncipes spinosa* var. *affinis*

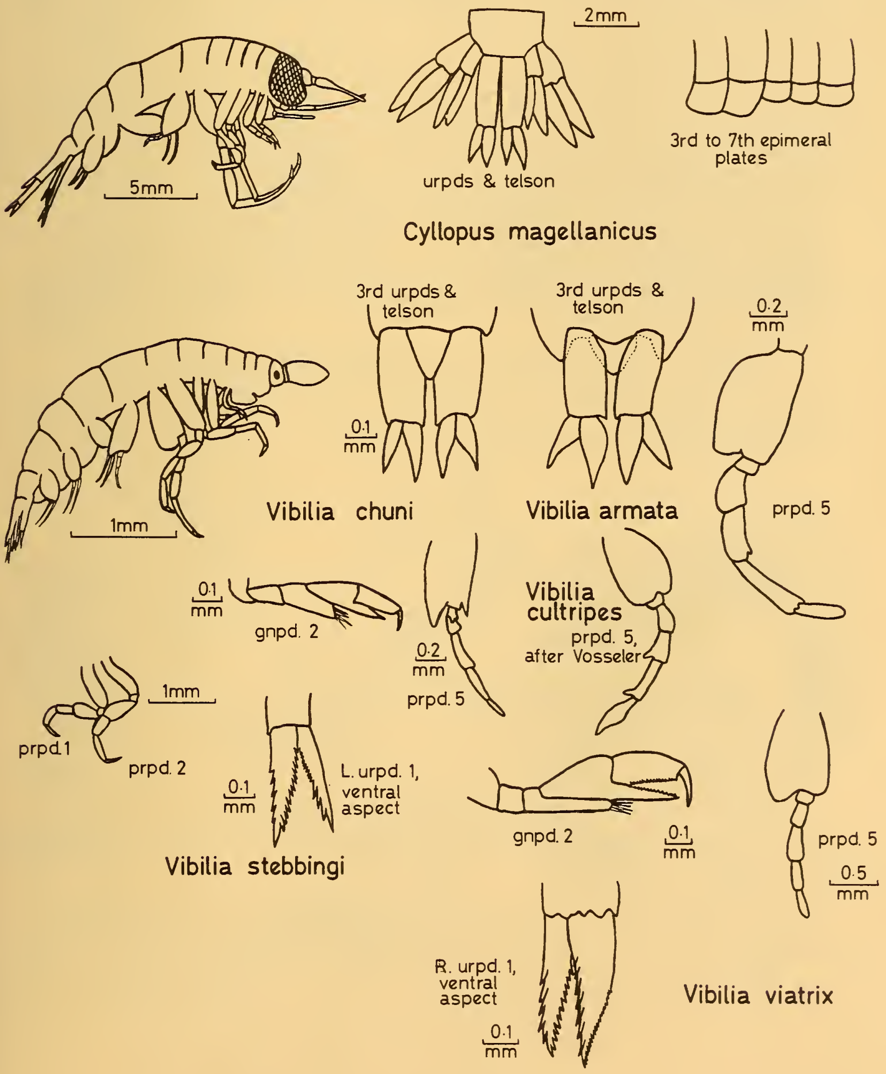

FIG. 4. Family *Vibiliidae*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN VIBILIIDAE

1. Eyes large, occupying whole of head; antenna 2 inserted on inferior surface of head; pereiopods 1 and 2, not longer than combined length of 1st to 5th joints of pereiopods 3 and 4; peduncle of uropod 3 longer than that of uropod 1 (*Cyllopus*); Peraeonal epimeral plates 3 and 4 twice length of 5th to 7th epimeral plates .. .. *C. magellanicus*

Eyes small to medium sized, not occupying whole of head; antenna 2 inserted on anterior surface of head; pereiopods 1 and 2, longer than combined length of 1st to 5th joints of pereiopods 3 and 4; peduncle of uropod 3 shorter than that of uropod 1 .. .. *Vibilia* 2

2. Posterodistal corners of 3rd urosome segment produced 3

Posterodistal corners of 3rd urosome segment not produced 5

3. Second joint of pereiopod 5 longer than combined length of 3rd to 7th joints *V. chuni*

Second joint of pereiopod 5 shorter than, or equal to combined length of 3rd to 7th joints 4

4. Pereiopod 5, anterodistal corners of 5th and 6th joints not obviously produced *V. armata*

Pereiopod 5, anterodistal corners of 5th and 6th joints obviously produced *V. cultripes*

5. Pereiopods 1 and 2, 4th joint as wide as 3rd and 5th joints .. *V. antarctica*

Pereiopods 1 and 2, 4th joint wider than 3rd and 5th joints 6

6. Fifth joint of gnathopod 2, produced anteriorly more than half length of 6th joint 7

Fifth joint of gnathopod 2, produced anteriorly half length of 6th joint *V. propinqua*

7. Second joint of pereiopod 5 with antero- and posterodistal corners obviously produced; uropods 1 and 2, inner side of outer ramus with small teeth proximally and large teeth distally .. .. *V. stebbingi*

Second joint of pereiopod 5 with antero- and posterodistal corners not obviously produced; uropods 1 and 2, inner side of outer ramus has only small teeth *V. viatrix*

KEY TO THE SPECIES OF SOUTH AFRICAN PARAPHRONIMIDAE

1. Pereiopod 5 not longer than combined length of 1st to 4th joints of pereiopod 4 *Paraphronima gracilis*

Pereiopod 5 subequal to pereiopod 4 .. .. *P. crassipes*

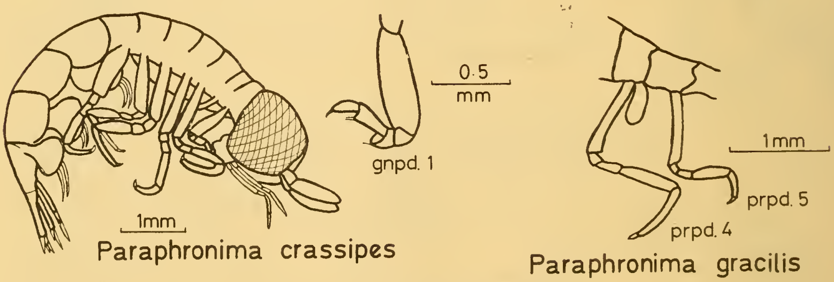

FIG. 5. Family *Paraphronimidae*

FAMILY CYSTISOMIDAE WILLEMOES-SUHM, 1875

In view of the considerable confusion existing in the taxonomy of species of *Cystisoma*, no key is given here.

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN HYPERIIDAE

1. Pereiopods 1 to 5, 6th joint distally produced opposite long 7th joint *Phronimopsis spinifera*

Pereiopods 1 to 5, 6th joint not produced 2

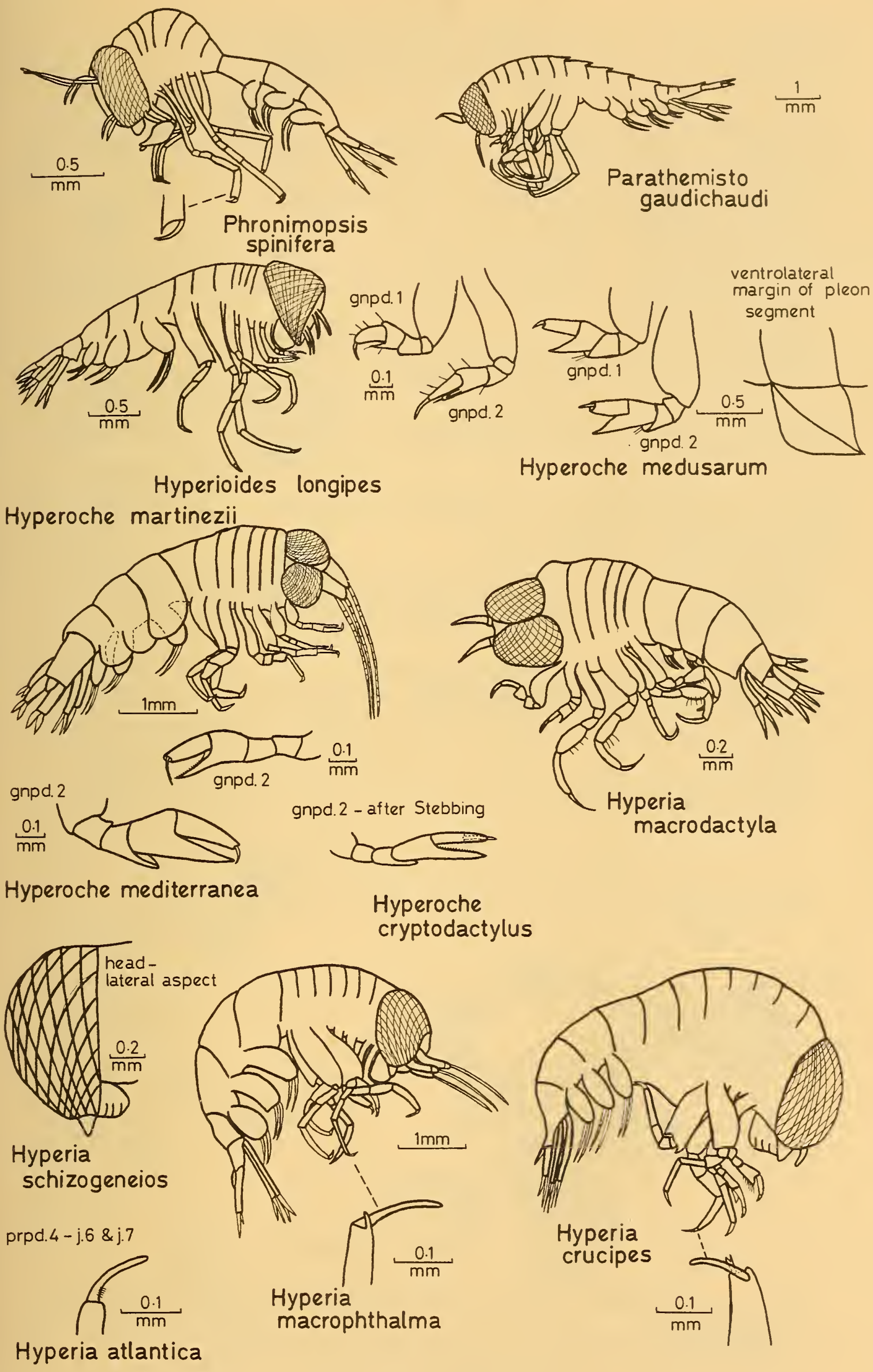

FIG. 6. Family *Hyperiidae*

2. Pereiopods 1 and 2, 5th joint wider than 4th and 6th joints 3
Pereiopods 1 and 2, 5th joint not wider than 4th and 6th joints 4
3. Pereiopods 1 and 2, 7th joint less than half length of 6th joint *Parathemisto gaudichaudi*
Pereiopods 1 and 2, 7th joint subequal to 6th joint .. *Hyperia macrodactyla*
4. Gnathopods 1 and 2, process of 5th joint laterally compressed and always more than half length of 6th joint 5
Gnathopods 1 and 2, process of 5th joint broad and scoop-like and not always more than half length of 6th joint .. .. *Hyperia* 9
5. Dorsal surface of head flattened; gnathopods 1 and 2, anterior edge of process of 5th joint flattened .. .. *Hyperioides longipes*
Dorsal surface of head rounded; gnathopods 1 and 2, anterior edge of process of 5th joint knife-like .. .. *Hyperoche* 6
6. Posterodistal corners of pleon segments produced as small points 7
Posterodistal corners of pleon segments smoothly rounded 8
7. Sixth joint of gnathopod 2 with a hooded process covering two-thirds of 7th joint *Hyperoche cryptodactylus*
Sixth joint of gnathopod 2 with a minor process .. .. *H. medusarum*
8. Posterior margin of 4th joint of gnathopod 2 produced under 5th joint *H. mediterranea*
Posterior margin of 4th joint of gnathopod 2 not produced .. *H. martinezii*
9. Species longer than 10 millimetres .. .. *Hyperia gaudichaudi*
Species maximally 10 millimetres long 10
10. Sides of head with a sharp pointed ventral process reaching level of mouthparts 11
Sides of head with a blunt ventral process not reaching level of mouthparts .. 12
11. Pereiopods 3 to 5, 6th joint with a distal forked spine opposing 7th joint *H. crucipes*
Pereiopods 3 to 5, 6th joint without a distal spine .. .. *H. schizogeneios*
12. Pereiopods 3 to 5, width of 2nd joint greater than half length .. *H. fabrei*
Pereiopods 3 to 5, width of 2nd joint less than half length 13
13. Pereiopod 4, 7th joint with a group of hairs in its crook and 6th joint without a distal spine .. .. *H. atlantica*
Periopod 4, 7th joint without a group of hairs in its crook; 6th joint with a distal spine opposing 7th joint .. .. *H. macrophthalma*

FAMILY DAIRELLIDAE VOSSELER, 1901

Dairella latissima is the only representative of the family.

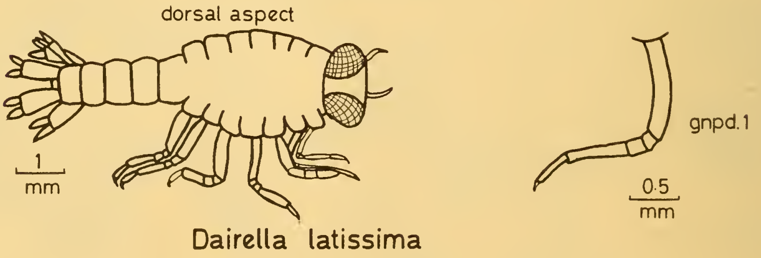

FIG. 7. Family *Dairellidae*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN PHRONIMIDAE

1. All appendages greatly elongate; 5th joint of pereiopod 3 about three times as long as broad, with anterior margin toothed and 6th and 7th joints folding against it *Phronimella elongata*

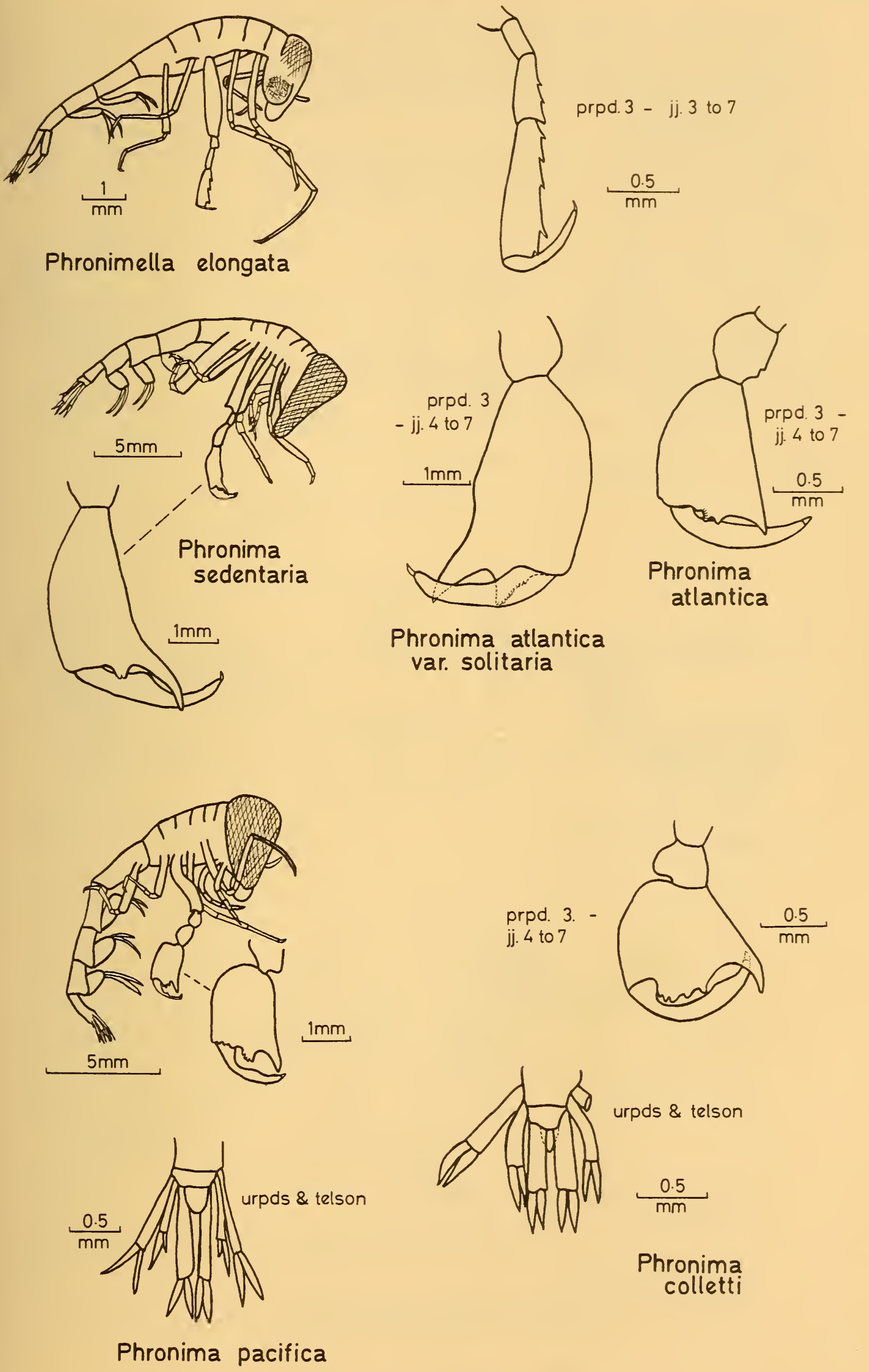

Fig. 8. Family *Phronimidae*

All appendages not greatly elongate; 5th joint of pereiopod 3 distally expanded and toothed, not three times as long as broad .. .. .. *Phronima* 2
2. Sixth joint of pereiopod 3, longer than maximum width of 5th joint 3
Sixth joint of pereiopod 3, as long as maximum width of 5th joint 5
3. Fifth joint of pereiopod 3, anterodistal process more than twice length of tubercle on expanded end .. .. *Phronima sedentaria*
Fifth joint of pereiopod 3, anterodistal process subequal to tubercle on expanded end 4
4. Fifth joint of pereiopod 3, tubercle preceded by a single tooth .. *P. atlantica*
Fifth joint of pereiopod 3, tubercle not preceded by any teeth *P. atlantica* var. *solitaria*
5. Inner ramus of uropod 2, less than half length of outer ramus .. *P. pacifica*
Inner ramus of uropod 2, subequal to outer ramus .. .. *P. colletti*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN PHROSINIDAE

1. Pereiopods 1 and 2 simple .. .. *Primno macropa*
Pereiopods 1 and 2 prehensile with 6th and 7th joints folding against 5th joint.. 2
2. Fifth joint of pereiopods 1 and 2, with a single pointed process *Anchylomera blossevillei*
Fifth joint of pereiopods 1 and 2, with a multiple toothed process *Phrosina semilunata*

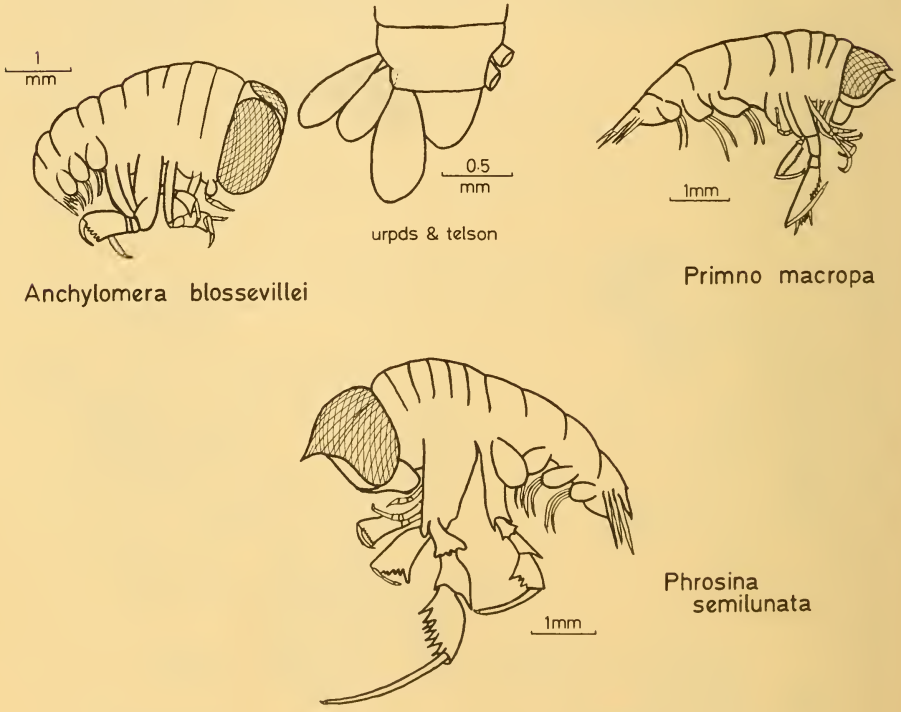

FIG. 9. Family *Phrosinidae*

KEY TO THE SPECIES OF SOUTH AFRICAN LYCAEOPSIDAE

1.	Telson more than half as long as uropod 3, apical angle less than 45°	*Lycaeopsis zamboangae*	
	Telson less than half as long as uropod 3, apical angle greater than 45°	*L. themistoides*	

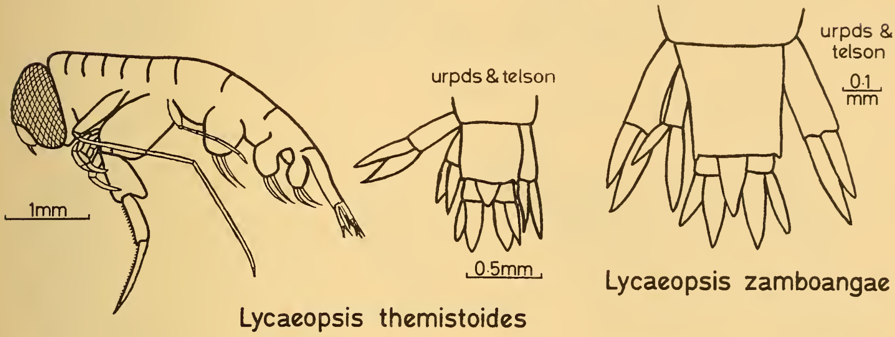

FIG. 10. Family *Lycaeopsidae*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN PRONOIDAE

1.	Gnathopods 1 and 2 both simple		2
	Gnathopod 1 subchelate; gnathopod 2 chelate		3
2.	Gnathopods 1 and 2 robust; maximum width of pereiopod 5 greater than half length; 2nd joint of pereiopod 5 right-angled where rudiment of 3rd joint is inserted	*Pronoe capito*	
	Gnathopods 1 and 2 slender; maximum width of pereiopod 5 less than half length	*Paralycaea gracilis*	
3.	First urosome segment greater than half combined length of 2nd and 3rd urosome segments	*Eupronoe*	4
	First urosome segment less than half combined length of 2nd and 3rd urosome segments		7
4.	Fourth joint of gnathopod 1 produced under 5th joint	*Eupronoe minuta*	
	Fourth joint of gnathopod 1 not produced under 5th joint		5
5.	Gnathopod 2, posterior margin of process of 5th joint apically rounded	*E. laticarpa*	
	Gnathopod 2, process of 5th joint apically acute		6
6.	Gnathopod 2, anterodistal corner of 5th joint produced	*E. maculata*	
	Gnathopod 2, anterodistal corner of 5th joint not produced	*E. intermedia*	
7.	Rami of uropod 3 broadly oval	*Sympronoe parva*	
	Rami of uropod 3 lanceolate	*Parapronoe crustulum*	

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN LYCAEIDAE

1.	Pereiopods 1 to 4, 6th joint with small distal process to which 7th joint is opposed	*Tryphana malmii*	
	Pereiopods 1 to 4, 6th joint without a distal process		2
2.	Pereiopods 3 and 4 equal in length, with 4th joint wider than 3rd and 5th joints	*Pseudolycaea pachypoda*	
	Pereiopod 4 as long as combined length of 1st to 5th joints of pereiopod 3; pereiopods 3 and 4 with 4th joint as wide as 3rd and 5th joints	*Lycaea*	3

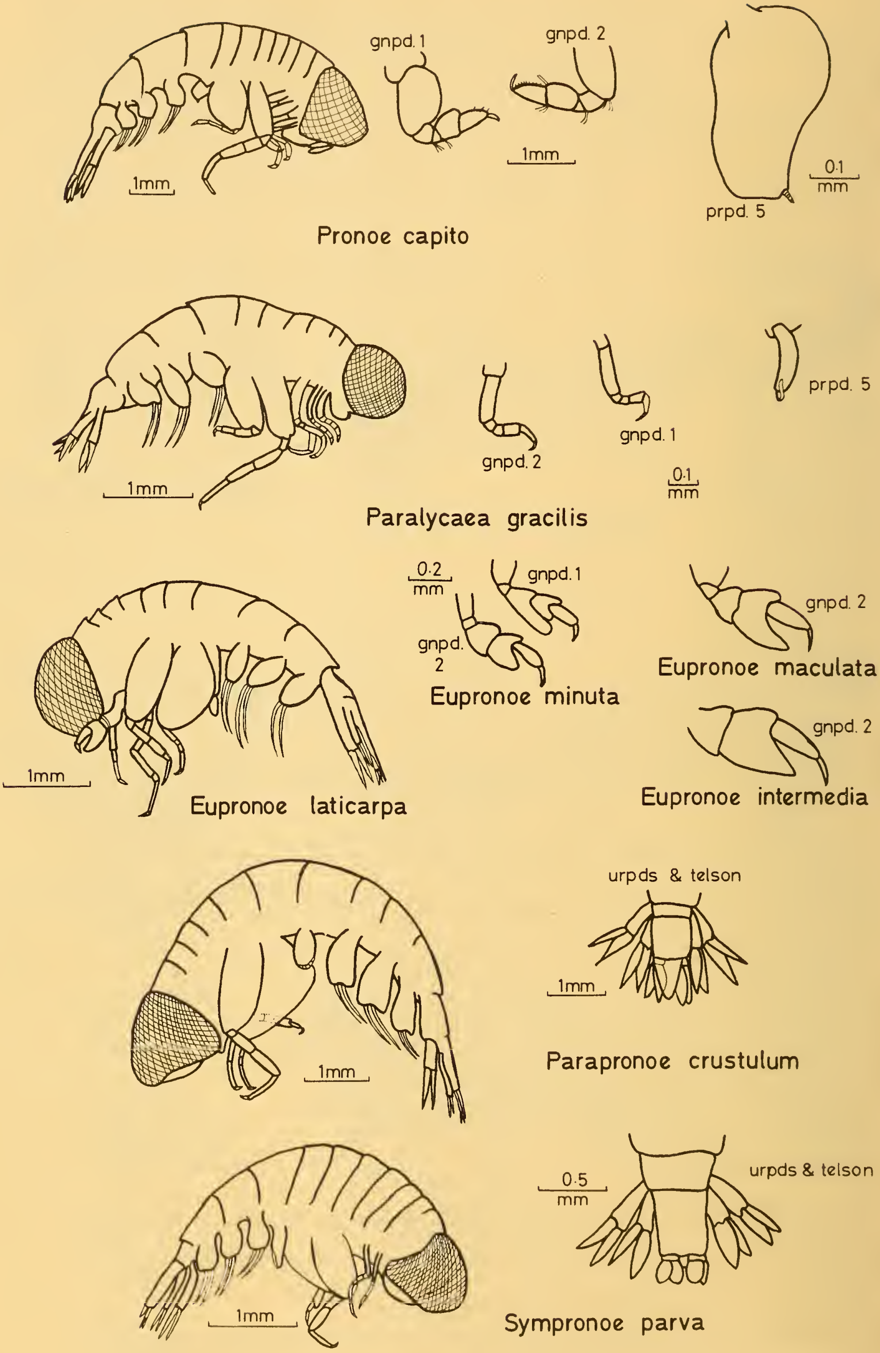

Fig. 11. Family *Pronoidae*

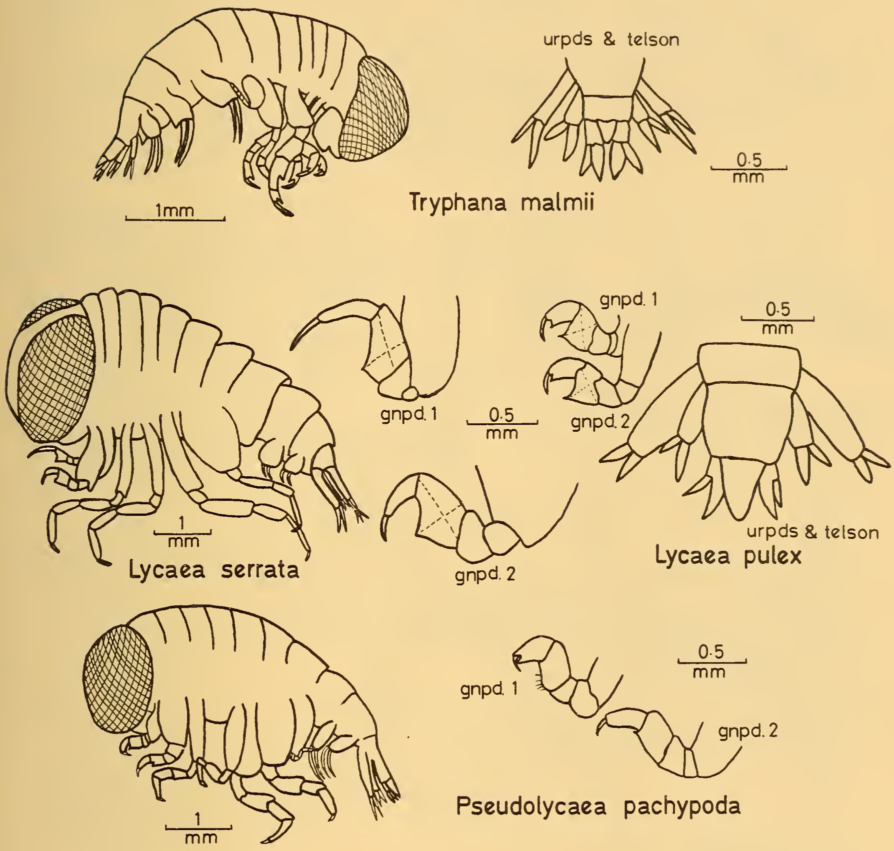

FIG. 12. Family *Lycaeidae*

3. Fifth joint of gnathopods 1 and 2, length greater than maximum width; pleon segments with strong middorsal ridges .. .. .. *Lycaea serrata*
Fifth joint of gnathopods 1 and 2, length subequal to maximum width 4
4. Inner ramus of uropod 2 fused with peduncle .. .. .. *L. nasuta*
Inner ramus of uropod 2 not fused with peduncle .. .. .. *L. pulex*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN BRACHYSCELIDAE

1. Pereiopods 1 to 4, 4th and 5th joints with long hairs on anterior and posterior margins .. .. *Thamneus platyrrhynchus*
Pereiopods 1 to 4, 4th and 5th joints without long hairs .. *Brachyscelus* 2
2. Gnathopods 1 and 2, process of 5th joint has major teeth interspersed with minor ones; uropod rami not broad .. .. *B. rapacoides*
Gnathopods 1 and 2, process of 5th joint has major teeth only; uropod rami broad *B. crusculom*

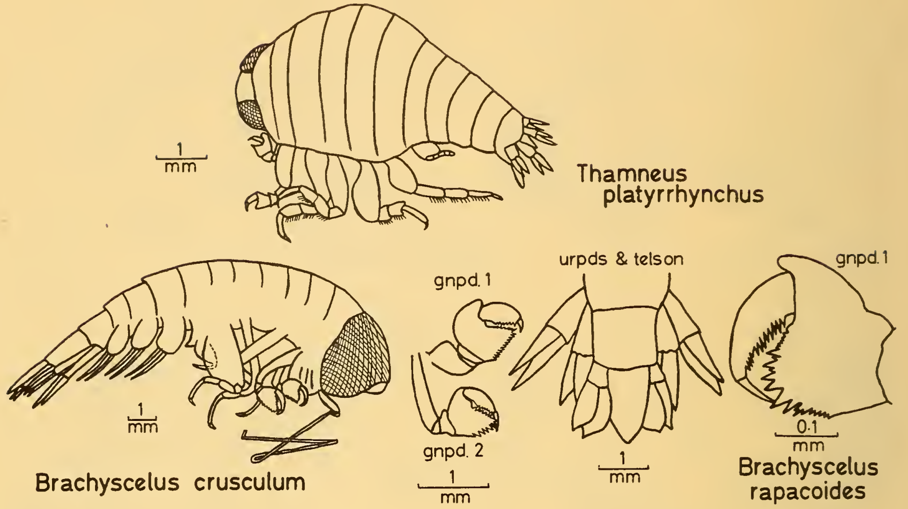

Fig. 13. Family *Brachyscelidae*

Key to the Genera and Species of South African Oxycephalidae

1. Inner rami of uropods not fused with peduncles 2
Inner rami of one or more pairs of uropods fused with peduncles 7
2. Head elongate with a long pointed rostrum .. .. .. *Streetsia* 3
Head globular with a short rostrum 6
3. Head plus rostrum subequal to length of peraeon, or shorter 4
Head plus rostrum longer than peraeon 5
4. Rostrum about half length of eyes; no obvious constriction of head posterior to eyes .. .. *Streetsia steenstrupi*
Rostrum longer than eyes; head obviously constricted posterior to eyes *S. mindanaonis*
5. Rostrum as long, or longer than eyes .. .. *S. challengeri*
Rostrum shorter than eyes .. .. *S. porcella*
6. Rostrum sharp-pointed .. .. *Cranocephalus scleroticus*
Rostrum blunt, beaked .. .. *Glossocephalus milne-edwardsi*
7. Inner ramus of uropod 2 not fused with peduncle; 1st urosome segment about one-third combined length of 2nd and 3rd segments 8
Inner ramus of uropod 2 fused with peduncle; 1st urosome segment about one-half combined length of 2nd and 3rd segments 9
8. Rostrum sharply pointed, without lateral expansions; inner ramus of uropod 1 less than a quarter length of outer ramus; uropods 1 and 2, inner margins of peduncles with large teeth .. .. *Leptocotis tenuirostris*
Rostrum dorso-ventrally flattened and pointed, with lateral expansions; rami of uropod 1 subequal; uropods 1 and 2, inner margins of peduncles with small teeth .. .. *Calamorhynchus pellucidus*
9. Rostrum very long and needle-like .. .. *Rhabdosoma* 10
Rostrum not long and needle-like 12
10. Telson as long, or longer than peduncle of uropod 3; uropods 2 and 3, rami subequal .. .. *Rhabdosoma whitei*
Telson maximally half length of peduncle of uropod 3; uropods 2 and 3, outer ramus less than a quarter length of inner ramus 11

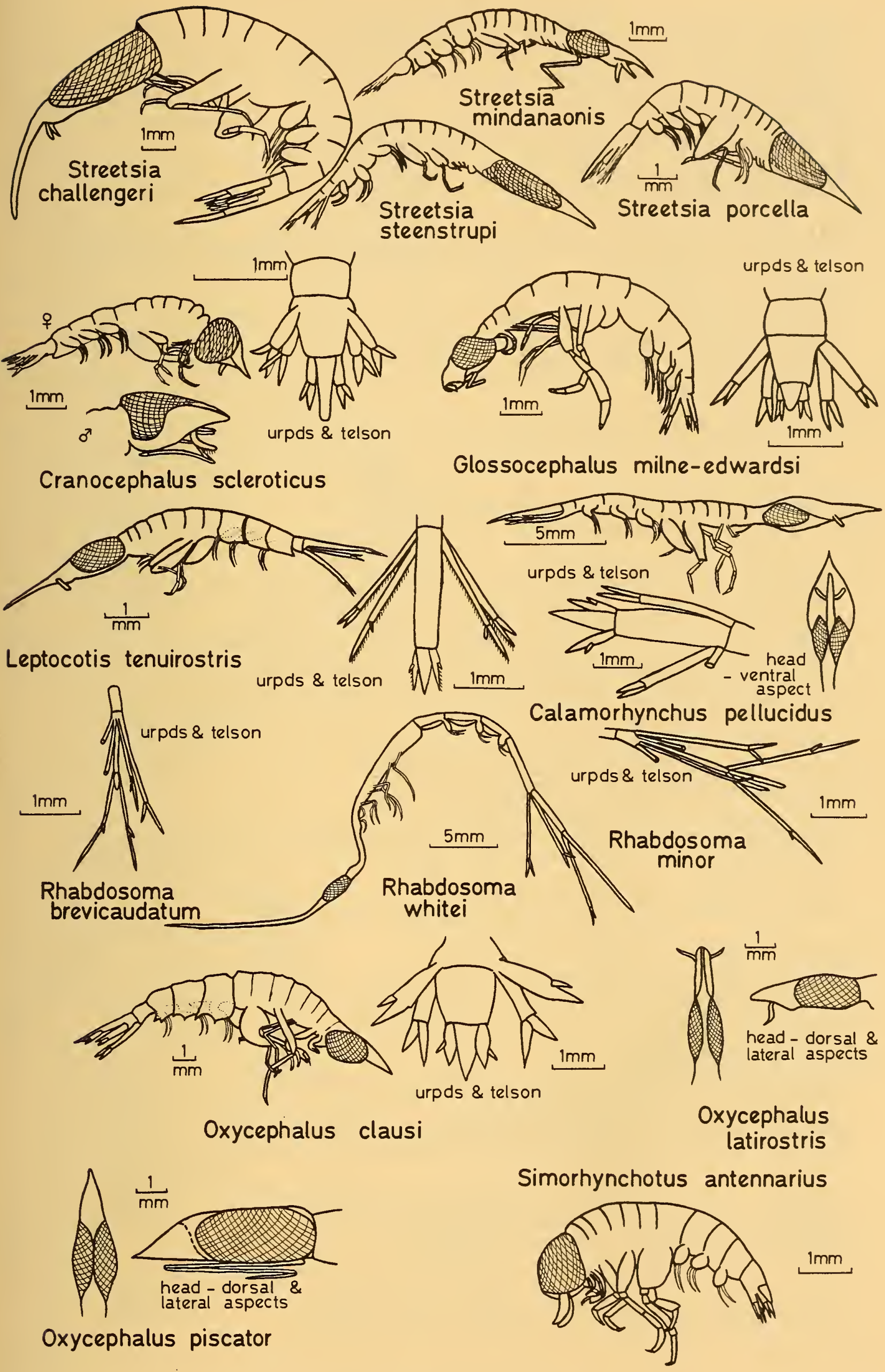

Fig. 14. Family *Oxycephalidae*

11. Peduncle of uropod 3 not three times length of telson . . . . *R. minor*

Peduncle of uropod 3 at least three times length of telson . . *R. brevicaudatum*

12. Gnathopods 1 and 2 subchelate . . . . . . *Simorhynchotus antennarius*

Gnathopods 1 and 2 chelate . . . . *Oxycephalus* 13

13. Pleon segments with two teeth at posterodistal corners . . *Oxycephalus clausi*

Pleon segments with one tooth at posterodistal corners 14

14. Rostrum terminally rounded . . . . *O. latirostris*

Rostrum terminally pointed . . . . *O. piscator*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN PARASCELIDAE

1. Fifth joint of gnathopod 2 not produced 2

Fifth joint of gnathopod 2 with a process as long as 6th joint which has a small inwardly directed process . . . . *Schizoscelus ornatus*

2. Rami of uropod 1 narrow; 4th joint of pereiopod 4 produced well beyond insertion of 5th joint and teeth on anterior margin larger than those on anterior margin of 5th joint . . . . *Parascelus* 3

Rami of uropod 1 broad; 4th joint of pereiopod 4 not produced beyond insertion of 5th joint and teeth on anterior margin subequal to those on anterior margin of 5th joint . . . . *Thyropus sphaeroma*

3. Second joint of pereiopod 4 not greatly tapering . . . . *Parascelus typhoides*

Second joint of pereiopod 4 tapers greatly . . . . *P. edwardsi*

KEY TO THE GENERA AND SPECIES OF SOUTH AFRICAN PLATYSCELIDAE

1. Gnathopods 1 and 2 simple, 5th and 6th joints without processes . . *Paratyphis* 2

Gnathopods 1 and 2 either chelate or subchelate, 5th and 6th joints with processes 4

2. Second joint of pereiopod 3 with a distal notch for insertion of 3rd joint 3

Second joint of pereiopod 3 with distal margin rounded and 3rd joint inserted subterminally on inner surface . . . . *Paratyphis spinosus*

3. Outer ramus of uropod 3 three-quarters length of inner ramus . . *P. promontorii*

Outer ramus of uropod 3 half length of inner ramus . . . . *P. maculatus*

4. Sixth joint of gnathopods 1 and 2 not produced 9

Sixth joint of gnathopods 1 and 2 produced 5

5. Gnathopods 1 and 2 complexly chelate, 5th joint produced beyond insertion of 6th joint . . . . *Amphithyrus* 6

Gnathopods 1 and 2, 5th joint not produced . . . . *Tetrathyrus forcipatus*

6. Fifth peraeonal epimeral plate bears a diagonally projecting spine *Amphithyrus bispinosus*

Fifth peraeonal epimeral plate bears no spine 7

7. Telson base broader than, or as broad as telson is long; body and appendages with sculptured surfaces . . . . *A. sculpturatus*

Telson base width less than, or equal to length of telson; body and appendages with smooth surfaces 8

8. Fourth joint of pereiopod 4 produced beyond insertion of 5th joint and 5th joint produced beyond insertion of 6th joint; telson terminally rounded *A. glaber*

Fourth joint only of pereiopod 4 produced; telson terminally pointed *A. similis*

9. Gnathopod 1 chelate, process of 5th joint about two-thirds length of 6th joint *Hemityphis rapax*

Gnathopod 1 chelate, process of 5th joint subequal to 6th joint . . *Platyscelus* 10

10. Sixth joint of pereiopod 1 less than half length of 5th joint . . *P. armatus*

Sixth joint of pereiopod 1 subequal to 5th joint 11

11. Anterior margin of 6th joint of gnathopods 1 and 2 toothed along whole length *P. ovoides*

Anterior margin of 6th joint of gnathopods 1 and 2 smooth . . *P. serratulus*

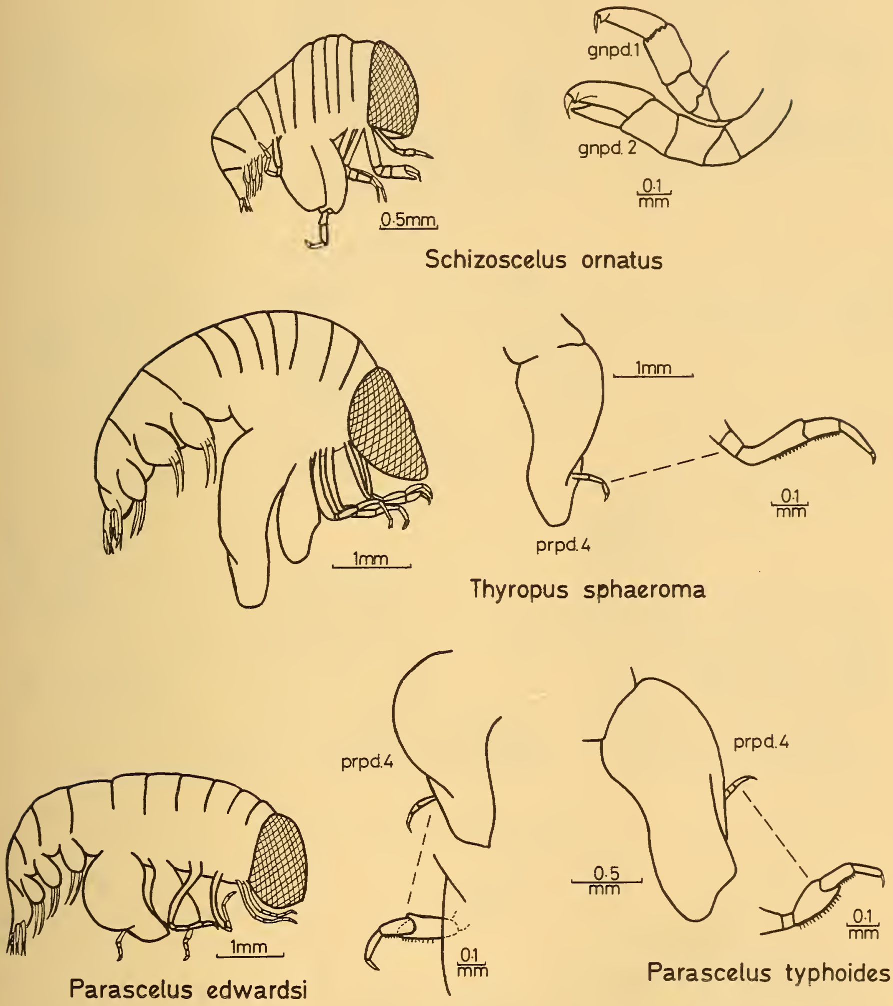

Fig. 15. Family *Parascelidae*

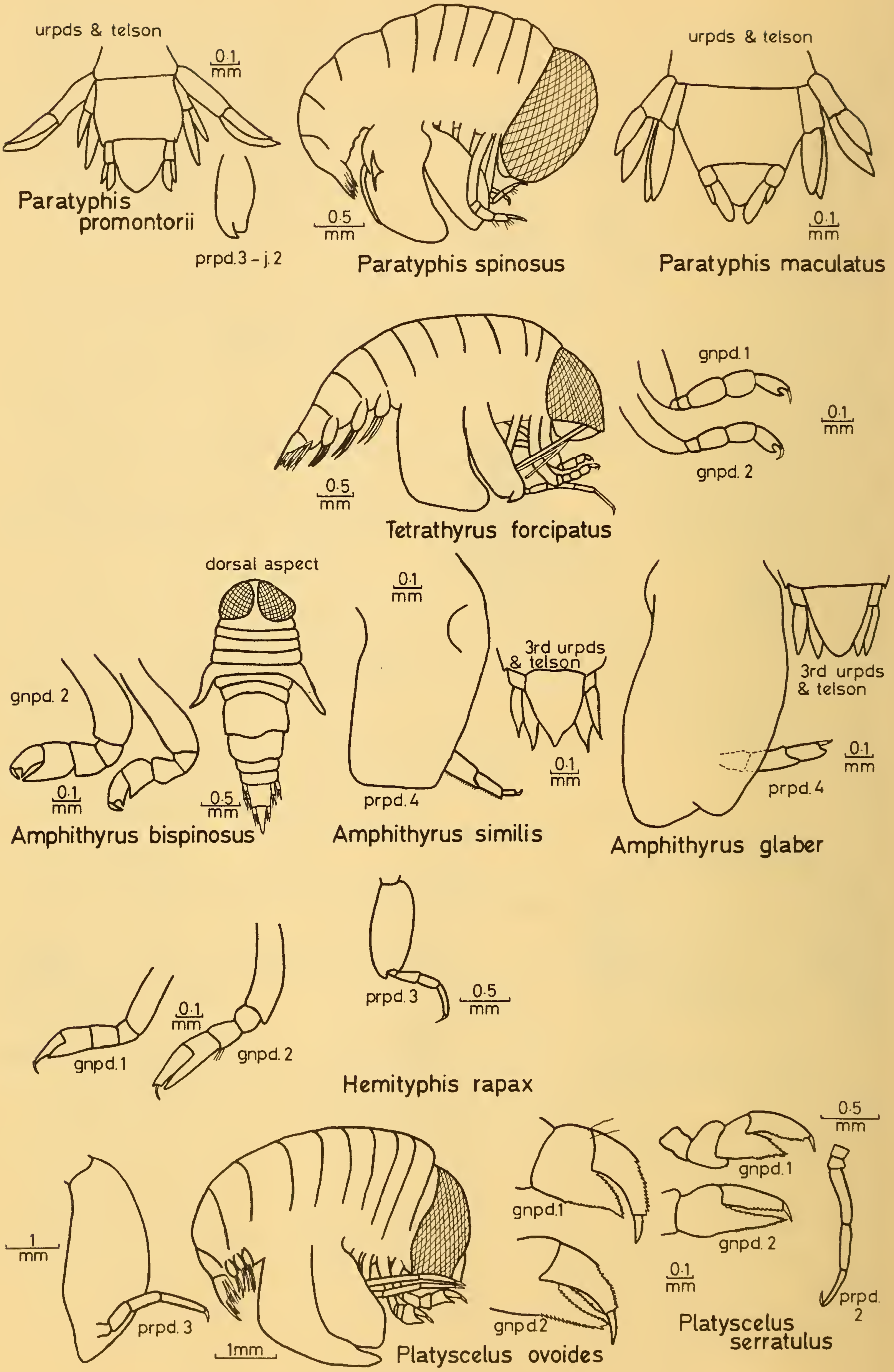

FIG. 16. Family *Platyscelidae*

Distribution List of South African Hyperiid Amphipoda

(A key to authors' numbers used appears before the references)

Family **Lanceolidae** Bovallius, 1887

Lanceola pacifica Stebbing, 1888

Synonymy: Barnard, K. H., 1932: 254.

World distribution: Atlantic 5:255; 17:135; 32:44; 36:11; 43:209; 50:30; 53:14; 72:64; Pacific 48:1306; 63:195.

South African records:
Barnard, K. H., 1932. 33/16, 950–850 m.

Remarks: The species is widely distributed in the tropical and temperate regions of the oceans. The South African record only confirms the mesopelagic nature of the species.

Lanceola serrata Bovallius, 1885

Synonymy: Barnard, K. H., 1932: 255.

World distribution: Atlantic 5:254; 17:136; 43:209; 48:1315; 53:15; 57:67; 59:17; Indian 5:255; Pacific 63:195.

South African records:
Barnard, K. H., 1932. 34/16, 1410–1310 m.

Remarks: The species is known from widely separated records in temperate regions. The mesopelagic nature of the species is confirmed by the South African record.

Scypholanceola vanhoeffeni Woltereck, 1905

Synonymy: Barnard, K. H., 1932: 257.

World distribution: Atlantic 1:291; 5:257; 17:139–140; 32:45; 43:215–218; 71:414; Indian 64:7; 71:414; Pacific 63:196; 64:7.

South African records:
Barnard, K. H., 1916. 34/17.
Barnard, K. H., 1932. 34/16.

Remarks: The species is known from widely distributed records, mainly in temperate regions. The South African records only consolidate the information on the geographic range of the species.

Family **Scinidae** Stebbing, 1888

Scina borealis (G. O. Sars, 1882)

Synonymy: Wagler, 1926: 335.

World distribution: Atlantic 5:260; 17:143–145; 32:79; 36:13; 38:20; 43:230; 44:8; 50:28; 53:30; 54:10; 57:66; 59:9; 65:104; 66:343; 67:94–95; Indian 6:181; 44:8; 62:162; 64:12; 66:344; 67:94–95; 69:53; Pacific 3:401; 26:9; 33:9; 61:86; 63:206; 64:12; Mediterranean 22:190; 53:30.

South African records:
Wagler, 1926. 33/16, 33/18.
Wagler, 1927. 35/13.
Barnard, K. H., 1932. 34/16.
Siegfried, 1963. Sectors 1, 2, 3.
NGY Samples. 30/30, 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/17, 150–0 m.

Remarks: The species is almost completely cosmopolitan in its geographic distribution. The South African records suggest that it may be both eurythermal and euryhaline in nature.

Scina crassicornis (Fabricius, 1775)

Synonymy: Wagler, 1926: 324.

World distribution: Atlantic 3:401; 5:258; 10:279; 17:146–148; 20:203; 32:65–66; 36:12; 43:228; 44:8; 48:1277; 49:365; 50:25; 53:19–21; 54:9; 59:7; 66:328; 67:90; Indian 6:181; 44:8; 62:163; 66:328; 67:90; 69:52; Pacific 3:401; 26:8; 27:278; 48:1277.

South African records:
Wagler, 1926. 33/16, 33/18, 34/18.
Wagler, 1927. 33/18.
Barnard, K. H., 1932. 34/16, 250–0 m.
Siegfried, 1963. Sectors 1, 2, 3, 4.

Remarks: The species is known from numerous widely scattered records in tropical and temperate regions. The South African records suggest a possible preference for warm temperate conditions.

Scina curvidactyla Chevreux, 1914

Synonomy: Wagler, 1926: 328.

World distribution: Atlantic 3:401; 5:259; 17:148; 43:230; 53:31; 66:331; 67:92; Indian 6:181; 66:331; Mediterranean 17:148.

South African records:
NGY Samples. 31/29, 5–0 m.

Remarks: A rare species known from relatively few records in tropical and temperate regions. It is a new addition to the South African hyperiid fauna. The solitary record consolidates the information on the geographic range in the Indian ocean, in which region records are particularly scarce.

Scina excisa Wagler, 1926

World distribution: Atlantic 43:230; 66:401; 67:104; Indian 66:401; 67:104.

South African records:
Wagler, 1926. 33/18.

Remarks: On the basis of present information this species is particularly rare. The known records are from tropical and temperate regions.

Scina incerta Chevreux, 1900

Synonymy: Wagler, 1926: 331.

World distribution: Atlantic 5:260; 16:123; 17:150; 43:230; 66:335; 67:93; Indian 66:335; Pacific 63:205.

South African records:
Barnard, K. H., 1932. 34/16.

Remarks: An uncommon species known from widely scattered records in tropical and temperate regions.

Scina langhansi Wagler, 1926

World distribution: Atlantic 5:260; 66:337.

South African records:
Barnard, K. H., 1932. 34/16.

Remarks: A very rare species only recorded from the tropical and temperate regions of the Atlantic.

Scina marginata (Bovallius, 1885)

Synonymy: Wagler, 1926: 361.

World distribution: Atlantic 5:261; 16:122; 17:154; 32:76; 43:232; 50:26; 53:27–28; 65:110; 67:98; Indian 6:181.

South African records:
NGY Samples. 31/25, 150–0 m.

Remarks: An uncommon species known from scattered records in tropical and temperate regions. The NGY record is a new record for the South African region.

Scina nana Wagler, 1926

World distribution: Atlantic 66:395; 67:103; Indian 66:395; 67:103; Pacific 26:9.

South African records:
Wagler, 1926. 33/18.
Wagler, 1927. 33/16, 250–0 m.
NGY Samples. 35/26, 150–0 m.

Remarks: A rare species known from widely separated records in tropical and temperate regions. The NGY record and that of Wagler (1927) suggest that the species may be epipelagic in nature but further information on the depth distribution is needed for confirmation of this.

Scina oedicarpus Stebbing, 1895

Synonymy: Wagler, 1926: 369.

World distribution: Atlantic 5:261; 17:155; 32:67, 68; 49:357; 50:25; 59:11; 66:372; 67:100; Indian 66:372.

South African records:
Wagler, 1926. 33/18.
Barnard, K. H., 1932. 34/16.

Remarks: An uncommon species recorded mainly from the tropical regions of the Atlantic.

Scina rattrayi Stebbing, 1895

Synonymy: Wagler, 1926: 375.

World distribution: Atlantic 5:261; 16:123; 17:156; 32:84; 49:359; 50:27; 53:29; 59:10; 66:380; 67:104; Indian 66:380; 67:104; Red Sea 66:380.

South African records:
Wagler, 1926. 33/18.

Remarks: An uncommon species recorded mainly from the tropical regions of the Atlantic.

Scina similis Stebbing, 1895

Synonymy: Wagler, 1926: 390.

World distribution: Atlantic 17:157; 32:85; 49:363; 66:393; 67:102; Indian 66:393; 67:102; Mediterranean 53:29.

South African records:
NGY Samples. 33/28, 150–0 m.

Remarks: A rare species with a wide distribution, mainly in tropical areas. It is new to the South African region.

Scina stenopus Stebbing, 1895

Synonymy: Wagler, 1926: 419.

World distribution: Atlantic 17:158; 32:66; 43:233; 49:356; 65:104; 66:422; 67:108; Indian 66:422; 67:108.

South African records:
Wagler, 1926. 33/18, 34/18.
NGY Samples. 30/31, 31/30, 31/31, 34/25, 34/27, 35/26: 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/17, 150–0 m.

Remarks: Prior to the present study, the species was known mainly from records in the tropical regions of the Atlantic. In the NGY samples it was the most abundant member of the genus *Scina*, which suggests that it has a preference for warm conditions.

Scina tullbergi (Bovallius, 1885)

Synonymy: Wagler, 1926: 384.

World distribution: Atlantic 5:261; 17:146; 32:85; 43:232; 44:8; 49:362, 365; 65:113; 66:389; 67:101; Indian 64:13; 66:389; Pacific 4:126; 26:9; Mediterranean 17:146.

South African records:
Siegfried, 1963. Sectors 2, 3.

Remarks: The species is known from widely distributed records in tropical and temperate regions.

Scina uncipes spinosa var. ***affinis*** Wagler, 1927

Synonymy: Wagler, 1926: 352. Wagler, 1927: 96.

World distribution: Atlantic 5:260; 67:96; Indian 66:354; 67:96.

South African records:
As *Scina uncipes* Stebbing, 1895, forma *affinis* Wagler, 1926. Barnard, K. H., 1932. 34/16.

Remarks: A relatively uncommon species known from widely separated records in tropical and temperate regions. Several subspecies and forms of these are described, producing a situation which is badly in need of clarification when enough material for comparative studies can be accumulated.

***Scina woltereck*i** Wagler, 1926

World distribution: Atlantic 5:261; 66:375; 67:100; Indian 64:13; 66:375; Pacific 63:207.

South African records:
Wagler, 1926. 33/18.

Remarks: A rare species known from widely separated records in tropical and temperate regions.

Ctenoscina brevicaudata Wagler, 1926

World distribution: Atlantic 66:439; Indian 64:15; 66:439.

South African records:
Wagler, 1926. 33/18.

Remarks: A very rare species known from widely separated records in tropical and temperate regions.

Family **Vibiliidae** Claus, 1872

Vibilia antarctica Stebbing, 1888

Synonymy: Barnard, K. H., 1932: 263.

World distribution: Atlantic 5:263; 8:486; 18:514; 47: charts facing 102, 103; Indian 3:404; 27:278; 64:16; Antarctica 5:263.

South African records:
Behning, 1925. 34/18, 35/18.

Remarks: The species is apparently restricted to the temperate and polar regions of the southern hemisphere.

Vibilia armata Bovallius, 1887

Synonymy: Behning, 1927: 119.

World distribution: Atlantic 2:376; 5:264–265; 8:491; 9:121: 17:169–170, 173; 20:203; 23:300; 32:101; 36:13; 40:222; 44:8; 50:31; 53:48; 57:64; 58:250; 59:15; 65:125; Indian 3:404; 6:182; 8:491; 44:8; 62:164; 64:16; 69:53; Pacific 3:404; 4:126; 14:388–389; 26:11; 27:279; 29:32; 33:11; Mediterranean 22:190; 53:46–48.

South African records:

Barnard, K. H., 1925. 33/27.

Behning, 1925. 33/16, 33/18, 34/18.

Siegfried, 1963. Sectors 1, 2, 3, 4.

Division of Sea Fisheries IIOE Cruise I. 26/36, 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 32/17, 33/16, 33/18, 34/16, 34/17, 34/18, 35/16, 35/17, 35/18, 36/18, 36/19: 150–0 m. and 5–0 m.

As *Vibilia gracilenta* Bovallius, 1887, Stewart, 1913. 34/15.

Remarks: This species has a wide distribution in tropical and temperate regions. Its distribution in South African waters suggests a preference for hydrological conditions associated with warm temperate regions.

Vibilia chuni Behning & Woltereck, 1912

World distribution: Atlantic 8:496; 9:121; 32:99; 58:251; Pacific 3:405; 27:279.

South African records:

NGY Samples. 31/25, 150–0 m.

Remarks: A rare species known from widely separated records in tropical and temperate regions. The NGY record is both the first for the Indian ocean and for the South African region.

Vibilia cultripes Vosseler, 1901

World distribution: Atlantic 5:265; 8:495; 9:121; 17:172–173; 32:100; 43:234; 44:8; 53:54; 65:123; Indian 8:495; Mediterranean 17:173; 53:53–54.

South African records:

Siegfried, 1963. 24/14, 150–0 m.

Remarks: An uncommon species known mainly from the tropical and temperate regions of the Atlantic. Siegfried's record is the first from the South African region.

Vibilia propinqua Stebbing, 1888

Synonymy: Behning, 1927: 118.

World distribution: Atlantic 3:404; 5:263; 8:484; 9:121; 17:174; 20:203; 32:97–98; 44:8; 50:32; 53:44; 58:246; 59:14; 65:125; Indian 6:182; 8:484; Pacific 3:404; 27:279; 48:1283; Mediterranean 53:43–44.

South African records:

Siegfried, 1963. Sector 2.

Remarks: A species with a wide distribution in tropical and temperate regions only recently recorded by Siegfried (1963) from the South African region.

Vibilia stebbingi Behning & Woltereck, 1912

Synonymy: Behning, 1927: 118.

World distribution: Atlantic 3:403–404; 8:482; 9:121; 17:175; 23:300; 32:97; 53:40; Indian 28:111; 64:15; Pacific 3:404; 25:125; 27:279; 28:111; 64:15; Mediterranean 53:40.

South African records:
NGY Samples. 34/25, 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 32/17, 33/16, 33/17, 34/15, 34/16, 35/15, 35/16, 35/17, 35/18, 36/19, 37/17, 37/18: 150–0 m and 5–0 m.

Remarks: A widely distributed species known from temperate and tropical regions which becomes exceedingly abundant when salp swarms occur. It is new to the list of hyperiids from South African waters.

Vibilia viatrix Bovallius, 1887

Synonymy: Behning, 1927: 117.

World distribution: Atlantic 3:403; 5:262; 8:482; 9:121; 17:175–176; 20:204; 32:96; 36:14; 43:234; 44:8; 53:41; 58:247; 65:124; Indian 8:482; 44:8; 62:160–161; 69:53; Red Sea 45:22; Pacific 3:403; 4:126; 14:389; 24:492; 26:10; 29:32; 33:10; 42:41; 48:1287; Mediterranean 53:41.

South African records:
Siegfried, 1963. Sectors 1, 2, 3.
NGY Samples. 30/31, 31/30: 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/17, 35/15, 37/18: 150–0 m and 5–0 m.

Remarks: The species is widely distributed in temperate and tropical regions. The reduced abundance in the Indian ocean is probably due to the lower number of samples taken in this region rather than to biological or hydrological reasons.

Cyllopus magellanicus Dana, 1852

Synonymy: Barnard, K. H., 1930: 408.

World distribution: Atlantic 5:266; 58:248; Indian 3:408; 28:111; 64:17; Pacific 3:408; 25:132; 28:111; 64:17; Antarctica 5:266; 28:111; 64:17.

South African records:
Barnard, K. H., 1932. 34/16.

Remarks: The species is restricted to the temperate and polar regions of the oceans of the southern hemisphere. Its presence in South African waters at considerable depth is no doubt due to upwelling of Antarctic water.

Family **Paraphronomidae** Bovallius, 1887

Paraphronima crassipes Claus, 1879

Synonymy: Shoemaker, 1945: 234.

World distribution: Atlantic 3:409; 5:268; 16:136; 17:179; 32:106; 36:15; 43:234; 44:8; 46:166; 55:77; 58:253; 65:100; Indian 6:183; 28:113; 62:160–161; 64:18; Pacific 3:409; 4:127; 14:391; 26:13; 27:280; 63:209; 64:18; Mediterranean 55:77.

South African records:
Barnard, K. H., 1932. 34/16, 250–0 m.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. 30/31, 31/31, 32/30, 34/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 35/15, 35/20, 36/18: 150–0 m.

Remarks: A very widely distributed species known from tropical and temperate regions. It is widely distributed in waters off the coasts of South Africa.

Paraphronima gracilis Claus, 1879

Synonymy: Spandl, 1927: 165.

World distribution: Atlantic 5:267; 16:135; 17:179–180; 20:202; 23:300; 32:104–105; 44:8; 46:165; 55:75–76; 58:253; 65:100; Indian 6:183; 62:165; 69:52; Pacific 14:390–1; 26:13; 33:12; Mediterranean 55:75.

South African records:
Barnard, K. H., 1932. 29/14, 200–0 m.
Siegfried, 1963. Sectors 3, 4.
NGY Samples. 29/32, 30/31, 31/30, 32/30, 33/28, 34/25, 34/26, 34/27: 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 26/35: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 36/19: 150–0 m.

Remarks: Previous records indicate that the species has a wide distribution in tropical and temperate regions. The distribution in South African waters seems to indicate a preference for warmer conditions.

Family **Cystisomidae** Willemoes-Suhm, 1875

Cystisoma africanum K. H. Barnard, 1916

World distribution: Indian 1:289.

South African records:
Barnard, K. H., 1916. 33/27.

Remarks: This species has only been recorded once. According to the logbook of the *Pieter Faure* in the South African Museum the type specimen was a moult. It is not present in the museum collection. Future work on South African members of the genus *Cystisoma* may place the species under *C. spinosum*.

Cystisoma coalitum (Woltereck, 1903)

World distribution: Atlantic 70:458; Indian 70:458.

South African records:
Woltereck, 1903. 33/18.

Remarks: This species is only known from Woltereck's records in the Atlantic and Indian oceans. Like the previous species its status may change when the genus *Cystisoma* is revised.

Family **Hyperiidae** Dana, 1852

Hyperia atlantica Vosseler, 1901

Synonymy: Yang, 1960: 28.

World distribution: Atlantic 43:300; 65:70; 73:32.

South African records:
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 35/15, 35/18: 150–0 m and 5–0 m.

Remarks: Prior to the present study this species had only been recorded from the temperate and tropical regions of the north-western Atlantic. The present records are therefore the first from the South Atlantic.

Hyperia crucipes Bovallius, 1889

World distribution: Atlantic 55:90; Indian 6:184; 68:236.

South African records:

Division of Sea Fisheries Routine Programme Cruises, 1962. 35/20, 5–0 m.

Remarks: A very rare species previously known from widely separated records in temperate and tropical regions. It is new to the south-west Indian ocean.

Hyperia fabrei (Milne-Edwards, 1830)

Synonymy: Yang, 1960: 33.

World distribution: Atlantic 3:410; 20:201; 23:300; 36:15; 46:153; 55:83; 65:59; 73:35; Red Sea 45:22; Pacific 3:410.

South African records:
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/16, 33/16, 35/15, 35/17, 35/19, 36/19: 150–0 m and 5–0 m.

Remarks: An uncommon species recorded mainly from tropical and temperate regions in the Atlantic. The present records are the first from the south-eastern Atlantic and south-western Indian oceans.

Hyperia gaudichaudi Milne-Edwards, 1840

Synonymy (discussed): Barnard, K. H., 1932: 273. Hurley, 1955: 143.

World distribution: Atlantic 1:286; 3:411; 5:273; 18:513; 44:8; Pacific 3:411; 48:1398.

South African records:

Barnard, K. H., 1916. West coast – on scyphomedusae.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/18, 33/16, 33/17, 33/18, 34/18: 60–0 m and 5–0 m.

As *Hyperia galba* (Montagu, 1813). Siegfried, 1963. Sectors 1, 2, 3, 4.

Remarks: Bowman (personal communication) asserts that all reliable records of this species indicate its restriction to cold temperate and polar regions of the southern hemisphere oceans, being replaced in the northern hemisphere by *H. galba.*

Hyperia macrodactyla Stephensen, 1924

World distribution: Atlantic 73:38; Pacific 27:279; Mediterranean 55:90.

South African records:

Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 35/17: 150–0 m.

Remarks: An apparently rare species known from widely separated records in tropical and temperate regions. The South African records are the first from the south-eastern temperate Atlantic.

Hyperia macrophthalma Vosseler, 1901

Synonymy: Yang, 1960: 19.

World distribution: Atlantic 23:300; 55:92; 65:71; 73:24; Mediterranean 55:92.

South African records:

Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 33/16, 34/17, 35/17, 35/18, 35/20: 150–0 m and 5–0 m.

Remarks: Prior to the present study, this species was only recorded from the tropical and temperate regions of the North Atlantic and the Mediterranean. The South African records are the first from the south-eastern Atlantic and south-western Indian oceans.

Hyperia schizogeneios Stebbing, 1888

Synonymy: Yang, 1960: 15.

World distribution: Atlantic 3:411; 16:139–140; 17:188–189; 20:201; 23:300; 32:121–122; 44:8; 48:1387, 1393; 55:87; 58:256; 65:64, 67; 73:18; Indian 6:183; 44:8; 62:160–161; Pacific 3:411; 29:32; 33:16–17; 62:48, 58; Mediterranean 22:193; 55:86–87.

South African records:

Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 32/16, 32/17, 33/15, 33/16, 33/17, 33/18, 34/16, 34/17, 34/18, 34/19, 35/17, 35/18, 35/19, 36/19, 36/21: 150–0 m and 5–0 m.

As *Hyperia promontorii* Stebbing, 1888. Stebbing, 1888. 34/18, surface. Siegfried, 1963. Sectors 1, 2, 3, 4.

Remarks: The species is very widely distributed in tropical and temperate regions. Its abundance in South African waters has however been greatly underestimated prior to the more recent surveys. This will probably prove to be the case in the rest of the Indian and in the Pacific ocean as well.

Hyperioides longipes Chevreux, 1900

Synonymy: Shoemaker, 1945: 238.

World distribution: Atlantic 5:276; 16:143; 17:189–191; 23:300; 32:125–126; 36:18; 43:238; 44:8; 46:164; 50:36; 55:93; 58:256; 59:23; 65:63; Indian 6:184; 64:22; Pacific 3:414–415; 26:15; 27:280; 29:32; 33:20; 64:22; Mediterranean 17:189–191; 22:190; 37:148; 55:93.

South African records:
Barnard, K. H., 1932. 34/16.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. Uniformly distributed in waters off the east and south coasts of the Republic from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/16, 33/16, 34/16, 34/17, 34/18, 35/18, 35/19, 35/21: 150–0 m and 5–0 m.

Remarks: It is apparent that the abundance of this species has been seriously underestimated in the Indian ocean area. In South African waters it displays a preference for near tropical conditions.

Hyperoche cryptodactylus Stebbing, 1888

World distribution: Atlantic 48:1402; Indian 68:236.

South African records:
Stebbing, 1888. 34/18, surface.

Remarks: The species is only known from the above records and its status is in doubt. Barnard (1930) infers that the original description was based on a specimen in the process of moulting.

Hyperoche martinezii (Fr. Müller, 1864)

World distribution: Atlantic 13:108.

South African records:
NGY Samples. 33/27, 34/25: 150–0 m.

Remarks: In common with most of the species within the genus, this is a very rare species but is considered valid by Barnard (1930). The NGY records are the first from the Indian ocean and apparently the only ones since the species was established.

Hyperoche mediterranea Senna, 1908

World distribution: Atlantic 17:191; Pacific 25:150; Mediterranean 39*a*:159; 55:79.

South African records:

Division of Sea Fisheries Routine Programme Cruises, 1963. 33/17, 150–0 m.

Remarks: A rare species known from widely separated records in temperate regions. It is new to the list of hyperiids from the south-eastern temperate Atlantic.

Hyperoche medusarum (Kröyer, 1838)

Synonymy: Barnard, K. H., 1930: 415.

World distribution: Atlantic 5:276; 10:279; 11:165–166; 12:139; 17:191; 23:300; 32:119; 38:9; 44:8; 54:13; 55:79; 57:61; 60:21; 65:55; Indian 28:112; 44:8; Pacific 25:147; 26:14; 61:89; 63:211.

South African records:

Siegfried, 1963. Sectors 1, 2, 3.

Division of Sea Fisheries Routine Programme Cruises, 1963. 33/18, 35/17: 5–0 m.

Remarks: This species, the most common in the genus, is widely distributed in cold temperate and polar regions. In South African waters it is restricted, along with other members of the genus, to the cold upwelled neritic waters near the coasts.

Parathemisto gaudichaudi (Guérin Méneville, 1825)

Synonymy: Bowman, 1960: 379.

World distribution: Atlantic 2:374; 3:420; 5:280; 10:279; 11:156–165; 12:142–144; 16:146; 17:191–192; 18:514; 23:300; 32:129; 35:78; 38:13, 15; 40:222; 44:8; 47: charts facing 102, 103; 48:1409; 50:38; 54:27–29, 31–32; 55:104–105, 107; 57:63–64; 58:256, 257; 59:24; 60:21; 65:84, 85; Indian 5:281; 28:112; 44:8; 46:165; 48:1413, 1416; 64:22; Pacific 3:420; 25:163; 28:112; 48:1413; 64:22; Mediterranean 55:104, 107.

South African records:

Barnard, K. H., 1932. 33/16, 1410–1310 m.

Siegfried, 1963. Sectors 1, 2, 3, 4.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/16, 32/17, 33/16, 33/17, 33/18, 34/15, 34/16, 34/17, 34/18, 34/19, 35/16, 35/17, 35/18, 35/19, 36/20, 37/21: 150–0 m and 5–0 m.

As *Euthemisto gaudichaudi* (Guérin, 1825). Barnard, K. H., 1925. 33/18, surface.

Remarks: The species is widely distributed in the temperate regions of both hemispheres and penetrates both the Arctic and Antarctic regions. In South African waters it is confined to areas where water originating from upwelling occurs.

Phronimopsis spinifera Claus, 1879

Synonymy: Shoemaker, 1945: 242.

World distribution: Atlantic 16:138; 43:242; 46:165; 55:111; 65:54; Indian 62:160–161; 69:51; Red Sea 45:23; Pacific 26:13; 29:32; 33:20; 48:1377; 62:58; Mediterranean 55:111.

South African records:
NGY Samples. 30/31, 30/32, 31/31, 32/29, 32/30, 33/27, 33/28, 34/23, 34/25, 34/26, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 34/16, 34/17, 35/19: 150–0 m and 5–0 m.

Remarks: A relatively uncommon species widely distributed in tropical and temperate regions. The distribution in South African waters suggests a preference for near tropical and tropical conditions. It is new to the South African faunal list.

Family **Dairellidae** Vosseler, 1901

Dairella latissima Bovallius, 1887

Synonymy: Spandl, 1927: 169.

World distribution: Atlantic 5:282; 17:184; 23:300; 32:108; 36:19; 46:169; 48:1346; 55:112; 58:254; 59:18; 65:51; Indian 6:184; Mediterranean 17:184; 55:112.

South African records:
Barnard, K. H., 1932. 34/16.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/16, 34/17, 35/18: 150–0 m and 5–0 m.

Remarks: A rare species previously known mainly from records in the tropical and temperate regions of the North Atlantic. The latest records only consolidate the information on distribution in the temperate region of the south-eastern Atlantic.

Family **Phronimidae** Dana, 1852

Phronima atlantica Guérin Menéville, 1836

Synonymy: Shih, 1969: 14, 15.

World distribution: Atlantic 3:422; 5:285; 10:279; 11:166; 16:137; 17:184; 20:202; 30:132; 32:113–114; 36:20; 41:57; 43:236; 44:9; 55:122–123; Indian 6:185; 7:484; 28:113; 30:132; 41:57; 44:9; 62:160–161; Red Sea 45:24; Pacific 3:422; 33:14; 41:57; 48:1352; 64:20; Mediterranean 17:184; 41:57; 55:121–122.

South African records:
Barnard, K. H., 1932. 34/16.
Barnard, K. H., 1940. 29/31, surface.
Siegfried, 1963. Sectors 1, 2, 3, 4.
Shih, 1969. 23/38, 24/36, 35/23, 35/18, 30/13: 300–0 m, 100–0 m and 50–0 m.

NGY Samples. 30/32, 31/31, 34/25, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/15, 32/16, 32/17, 33/15, 33/16, 33/17, 34/15, 34/16, 34/17, 35/16, 35/18, 36/19, 37/21: 150–0 m and 5–0 m.

Remarks: A common species widely distributed in tropical and temperate regions. The wide tolerances of the species are confirmed by the occurrence of the species off South Africa in hydrological conditions ranging from tropical to warm temperate.

Phronima colletti Bovallius, 1887

Synonymy: Shih, 1969: 21.

World distribution: Atlantic 5:286; 16:137; 17:184–185; 20:202; 30:139; 32:115; 35:70; 36:20; 41:59; 43:236; 44:9; 55:128; 65:36; Indian 6:186; 7:484; 30:139; 41:59; 44:9; 62:160–161; Pacific 26:17; 27:280; 29:32; 33:15; 41:59; Mediterranean 41:59; 55:128.

South African records:
Barnard, K. H., 1940. 29/31, surface.
Siegfried, 1963. Sectors 1, 2, 4.
Shih, 1969. 23/38, 24/36, 31/30, 30/13: 300–0 m, 100–0 m and 50–0 m.
NGY Samples. 30/30, 30/32, 31/29, 32/30, 34/26, 35/26: 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35, 26/37: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/18, 150–0 m and 5–0 m.

Remarks: Although the species is widely distributed in tropical and temperate areas, like the previous species the distribution in South African waters shows a preference for tropical and subtropical conditions.

Phronima pacifica Streets, 1887

Synonymy: Shih, 1969: 18.

World distribution: Atlantic 3:423; 5:285; 17:185; 30:140; 36:21; 41:58; 43:236; 44:9; 48:1350; 55:130; 65:32; Indian 41:58; 69:51; Red Sea 45:25; Pacific 41:58; 62:58.

South African records:
Barnard, K. H., 1932. 29/14, 200–0 m.
Siegfried, 1963. Sectors 2, 3.
Shih, 1969. 23/38, 24/36, 32/30: 100–0 m and 50–0 m.
NGY Samples. 30/32, 31/30, 33/29, 34/23, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/15, 32/16, 32/17, 33/15, 33/16, 34/15, 34/16, 34/17, 35/15, 35/16, 35/17, 35/18, 36/19, 36/21, 37/18, 37/21: 150–0 m and 5–0 m.

Remarks: Prior to the present study this species was known from relatively few records in South African waters. Its preferences are not as clear as the previous species but there is some indication of a preference for warmer conditions.

Phronima sedentaria (Forskål, 1775)

Synonymy: Shih, 1969: 10, 11.

World distribution: Atlantic 3:422; 5:283; 10:279; 11:166; 16:136; 17:185–186; 20:202; 30:129; 32:111–112; 36:21; 41:55; 43:236; 44:9; 50:32; 51:475; 54:35; 55:116–117; 58:254; 59:18; 65:20; Indian 6:185; 28:113; 41:55; 44:9; 48:1356; 62:161; 64:20; 69:51; Pacific 3:422; 14:389–390; 24:490; 25:169; 26:16; 27:280; 33:13; 41:55; 48:1354, 1357; 61:92; 63:210; 64:20; Mediterranean 17:185–186; 22:190; 55:115–116; 41:55.

South African records:
Stebbing, 1910. 33/16.
Barnard, K. H., 1932. 29/14, 33/16.
Siegfried, 1963. Sectors 2, 3, 4.
Shih, 1969. 23/38, 24/36, 31/30, 35/18, 30/13: 300–0 m, 100–0 m and 50–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m and 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/15, 32/16, 33/16, 34/16, 34/17, 35/15, 35/17, 36/19: 150–0 m and 5–0 m.

Remarks: The species is the most frequently recorded member of the genus and is very widely distributed. Its distribution in South African waters supports the wide hydrological tolerances that the world distribution infers.

Phronima solitaria Guérin Méneville, 1836
(*P. atlantica* var. *solitaria* in key to *Phronimidae*).

Synonymy: Shih, 1969: 16, 17.

World distribution: Atlantic 3:423; 30:133; 41:57; 43:236; 44:9; 65:23; Indian 6:186; 30:133; 41:57; Pacific 41:57; Mediterranean 41:57; 55:125.

South African records:
Shih, 1969. 23/38, 24/36, 31/30, 35/23: 300–0 m, 100–0 m and 50–0 m.
NGY Samples. 30/32, 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/16, 34/17, 35/16: 150–0 m.
As *Phronima atlantica* var. *solitaria* (Guérin Méneville, 1836), Vosseler, 1901.
Siegfried, 1963. 33/14, 5–0 m.

Remarks: A rare species known from widely separated records mainly in tropical regions. The distribution in South African waters confirms the preference for conditions of a tropical or subtropical nature.

Phronimella elongata (Claus, 1862)

Synonymy: Shih, 1969: 30, 31.

World distribution: Atlantic 3:423–424; 5:286; 11:166; 16:138; 17:187; 20:202; 30:142; 32:117; 35:70; 36:22; 41:61; 43:237–238; 44:9; 48:1370, 1371; 55:132; 65:43; Indian 6:186; 7:485; 30:142; 41:61; 44:9; 62:160–161; 69:51; Pacific 3:423–424; 27:280; 33:16; 41:61; 48:1365, 1368, 1369; Mediterranean 22:190; 41:61; 55:130–132.

South African records:

Barnard, K. H., 1940. 29/31, surface.

Siegfried, 1963. Sectors 1, 2, 3, 4.

Shih, 1969, 23/38, 24/36, 35/23: 300–0 m. 100–0 m and 50–0 m.

NGY Samples. 30/31, 30/32, 31/29, 31/30, 31/31, 32/29, 32/30, 33/27, 34/25, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 32/17, 33/16, 34/17, 35/15, 35/16, 35/17, 35/18, 35/19, 35/20, 36/21: 150–0 m and 5–0 m.

Remarks: Like the other members of the Phronimidae this species is very widely distributed in tropical and temperate regions. In South African waters the same tolerance of widely varying oceanographic conditions is exhibited with a slight preference for warm temperate and subtropical conditions.

Family **Phrosinidae** Dana, 1852

Anchylomera blossevillei Milne-Edwards, 1830

World distribution: Atlantic 3:425; 5:288; 16:147–148; 17:180–181; 18:516; 20:200; 23:300; 32:132; 35:69; 36:22; 43:234; 44:9; 46:167; 48:1439; 55:135–136; 58:258; 65:89; Indian 6:188; 44:9; 62:160–161; 64:19; 69:52; Red Sea 45:26; Pacific 3:425; 26:18; 27:281; 29:32; 33:21; 42:42; 38:1439–1440; 62:58; Mediterranean 37:149; 55:134–135.

South African records:

Barnard, K. H., 1932. 33/16.

Siegfried, 1963. Sectors 1, 2, 4.

NGY Samples. More or less uniformly distributed in the waters off the south and east coasts of the Republic from Durban to Cape Seal: 150–0 m and 5–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 33/16, 34/15, 34/16, 34/17, 35/15, 35/16, 35/17, 35/18, 35/19, 35/20, 36/19, 36/20, 36/21, 37/21: 150–0 m and 5–0 m.

Remarks: A common species which is very widely distributed in tropical and temperate regions. In waters off South Africa the distribution seems to be determined more by salinity-associated factors than by temperature.

Phrosina semilunata Risso, 1822

Synonymy: Shoemaker, 1945: 236.

World distribution: Atlantic 3:424; 5:287; 11:166; 16:147; 17:182–183; 20:202;

23:300; 32:133–134; 36:22; 43:236; 44:9; 46:168; 48:1429; 51:477; 55:140; 58:257; 59:24; 65:90; Indian 1:293; 6:187; 44:9; 46:168; 62:160–161; 64:19; 69:52; Red Sea 45:26; Pacific 3:424; 26:18; 27:281; 29:32; 33:23; 48:1430, 1431; Mediterranean 17:182–183; 22:190; 55:138–140.

South African records:
Spence Bate, 1862, according to Stebbing, 1910. 34/18.
Spandl, 1927. 35/19.
Barnard, K. H., 1932. 29/14, 33/16, 34/16.
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. More or less uniformly distributed in the waters off the south and east coasts of the Republic from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 26/35: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 33/16, 34/15, 34/16, 34/17, 35/15, 35/17, 35/18, 35/19, 36/20, 36/21, 37/18, 37/20, 37/21: 150–0 m and 5–0 m.

Remarks: The species is very common and widely distributed in tropical and temperate areas. In spite of this its distribution in waters off South Africa demonstrates that it has definite preferences for tropical and near tropical conditions.

Primno macropa Guérin Méneville, 1836

Synonymy: Shoemaker, 1945: 234.

World distribution: Atlantic 2:375; 5:288; 16:148; 17:181–182; 20:200; 23:300; 32:130–131; 36:23; 43:234–236; 44:9; 46:169; 47: charts facing 102, 103; 50:40; 55:144; 58:258; 59:25; 65:88; Indian 6:187; 28:113; 46:169; 48:1448, 1450; 62:160–161; 64:19; 69:52; Red Sea 45:25; Pacific 3:425; 4:128; 14:386–387; 25:174; 26:18; 27:280; 28:113; 29:32; 33:22; 48:1444, 1447; 61:94; 63:209; 64:19; Mediterranean 17:181–182; 22:190; 55:143–144; Antarctica 5:288.

South African records:
Barnard, K. H., 1932. 29/14, 34/16.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. More or less uniformly distributed in the waters off the south and east coasts of the Republic from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 33/16, 34/16, 34/17, 35/16, 35/17, 35/18, 35/19, 35/20, 36/19, 37/21: 150–0 m and 5–0 m.

Remarks: The world distribution of this species is very nearly cosmopolitan in terms of geographic range. In South African waters the species is vastly more common off the east and south coasts than off the west coast. This suggests that, in spite of its wide geographic distribution, the species prefers conditions approximating those in subtropical areas.

Family **Lycaeopsidae** Chevreux & Fage, 1925

Lycaeopsis themistoides Claus, 1879

Synonymy: Barnard, K. H., 1930: 425.

World distribution: Atlantic 3:425; 17:193; 20:201; 23:300; 32:143; 36:23; 44:9; 46:213; 56:154; Indian 23:64; 69:53; Red Sea 45:28; Pacific 3:425; 4:128; 29:32; 33:28; 48:1458; Mediterranean 22:190; 37:149; 56:154.

South African records:
Siegfried, 1963. 23/12.
NGY Samples. 32/30, 34/26, 35/26: 150–0 m and 5–0 m.

Remarks: An uncommon species which is widely distributed in tropical and temperate areas. Its greater abundance in South African waters off the south and east coasts points to a preference for tropical and subtropical conditions.

Lycaeopsis zamboangae (Stebbing, 1888)

Synonymy: Barnard, K. H., 1930: 426.

World distribution: Atlantic 3:426; 16:148; 17:195; 32:144; 46:213; 48:1454, 1461; Red Sea 45:27; Pacific 4:129; 26:20; 27:281; 33:28; 48:1454.

South African records:
NGY Samples. 34/26, 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/17, 5–0 m.

Remarks: An uncommon species widely distributed in tropical and temperate regions. The South African records are the first from the south-east Atlantic and south-west Indian oceans.

Family **Pronoidae** Claus, 1879

Eupronoe armata Claus, 1879

World distribution: Atlantic 3:427; 16:152; 44:9; 46:224; 56:159; 58:262; Indian 6:189; 44:9; 69:54.

South African records:
Siegfried, 1963. Sectors 1, 2, 3, 4.

Remarks: A relatively rare species known from widely separated records in tropical and temperate areas.

Eupronoe intermedia Stebbing, 1888

World distribution: Atlantic 20:200; 46:222; 48:1519.

South African records:
NGY Samples. More or less uniformly distributed in waters off the south and east coasts of South Africa from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 35/15, 150–0 m.

Remarks: A rare species previously known mainly from the tropical Atlantic. It is felt that the status of the species is questionable and that re-examination of the type specimens may lead to its being united with *E. maculata*. Barnard (1930) synonymizes it with *E. armata*.

Eupronoe laticarpa Stephensen, 1926

World distribution: Atlantic 23:300; 56:161; Pacific 4:129; 33:35.

South African records:

NGY Samples. 30/31, 30/32, 31/31, 32/27, 32/29, 32/30, 33/28, 34/23, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.

Remarks: A rare but distinctive species previously known from widely separated records in tropical and temperate areas. The South African records are the first from the south-western Indian ocean and point to a possible preference for tropical or subtropical conditions.

Eupronoe maculata Claus, 1879

Synonymy: Stephensen, 1926: 156.

World distribution: Atlantic 5:289; 20:201; 32:149; 36:24; 43:245; 44:9; 46:222; 48:1513; 56:156; Indian 6:188; 44:9; 64:25; Pacific 3:426; 4:129; 33:34; 48:1513; Mediterranean 37:150; 56:156.

South African records:

Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 30/31, 31/30, 32/29, 34/23, 34/25: 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/16, 34/17, 35/15, 35/17, 35/18, 35/19, 35/21, 36/18, 36/19, 37/18, 37/21: 150–0 m and 5–0 m.

Remarks: A common species known from records in tropical and temperate areas. The NGY records are the first from waters off the south and east coasts of South Africa.

Eupronoe minuta Claus, 1879

World distribution: Atlantic 5:289; 17:197; 32:148; 36:25; 43:236; 44:9; 56:160; Indian 62:160–161; 64:25; Pacific 3:426; 14:386; 26:19; 27:281; 29:32; 33:35; 48:1517; Mediterranean 22:190; 56:160.

South African records:

Barnard, K. H., 1932. 29/14, 34/16.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. 30/31, 30/32, 31/29, 32/29, 32/30, 33/29, 34/25, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/35, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 33/16, 34/16, 34/17, 35/15, 35/16, 35/17, 35/18, 36/20: 150–0 m and 5–0 m.

Remarks: A widely distributed species known from tropical and temperate areas. The distribution in South African waters points to a preference for subtropical or warm temperate conditions.

Paralycaea gracilis Claus, 1879

Synonymy: Hurley, 1955: 175.

World distribution: Atlantic 32:135; 48:1571; 56:166; 59:27; Indian 48:1570; Pacific 3:427; 25:179; 26:20; 27:281; 33:30; 64:26; Mediterranean 56:165–166.

South African records:
NGY Samples. 30/32, 31/31, 33/28, 34/27: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/15, 33/16, 34/16: 150–0 m and 5–0 m.

Remarks: An uncommon but widely distributed species known from records in tropical and temperate regions. The distribution in South African waters suggests a preference for subtropical or warm temperate conditions.

Parapronoe crustulum Claus, 1879

Synonymy: Shoemaker, 1945: 246.

World distribution: Atlantic 5:290; 16:152; 17:200; 32:150, 152; 36:24; 43:246; 44:9; 46:220; 48:1532; 51:479; 56:165; Indian 1:294; 6:189; 44:9; 48:1529; 69:54; Pacific 3:427; 27:281; 33:32; 48:1526, 1530; 64:25.

South African records:
Siegfried, 1963. Sectors 1, 2, 3.
NGY Samples. 35/26, 150–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 32/16, 34/16, 34/16, 34/17, 36/21, 37/18, 37/21: 150–0 m and 5–0 m.
As *Parapronoe campbelli* Stebbing, 1888, Siegfried, 1963. Sectors 2, 3, 4.
As *Parapronoe clausi* Stebbing, 1888, Barnard K. H., 1916. 33/28.
As *Amphipronoe cuspidata* Spence Bate, 1862, Spence Bate, 1862, according to Stebbing, 1910. 34/18.

Remarks: A relatively uncommon species which is widely distributed in tropical and temperate areas. The distribution in South African waters points to a slight preference for temperate conditions.

Pronoe capito Guérin Méneville, 1836

World distribution: Atlantic 5:289; 17:197; 32:147; 36:25; 46:217; 48:1509; Indian 6:188; 69:54; Red Sea 45:34; Pacific 48:1509.

South African records:
NGY Samples. 33/28, 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m.

Remarks: A relatively rare species known mainly from records in tropical areas. The South African records are the first from the south-west Indian ocean and point to a preference for subtropical or tropical conditions.

Sympronoe parva (Claus, 1879)

Synonymy: Shoemaker, 1945: 246.

World distribution: Atlantic 5:291; 20:203; 32:152; 35:70; 36:23; 43:246; 44:9; 46:225; 48:1537; 56:162; Indian 6:190; 31:62; 69:54; Pacific 3:427; 4:129; 26:19; 27:281; 29:32; 33:33; 42:42; 48:1537; Mediterranean 56:162.

South African records:
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. 30/31, 32/30, 34/23, 34/25, 34/26: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 33/16, 33/17, 34/17, 35/18: 150–0 m and 5–0 m.

Remarks: A widely distributed species known from records in tropical and temperate regions. The distribution in South African waters suggests a preference for subtropical or warm temperate conditions.

Family **Lycaeidae** Claus, 1879

Lycaea nasuta Claus, 1887

World distribution: Atlantic 5:291; 44:10; Pacific 3:430; Indian type locality.

South African records:
Barnard, K. H., 1932. 34/16.
Siegfried, 1963. Sectors 2, 3.

Remarks: Although the type locality is off Zanzibar the species has not been recorded since from the Indian ocean, all of the later records being from the Atlantic. In view of this and the general state of confusion in the taxonomy of species of *Lycaea*, it is highly desirable that the type specimen be re-examined since the figures given by Barnard (1930) are totally inadequate.

Lycaea pulex Marion, 1874

Synonymy: Shoemaker, 1945: 243.

World distribution: Atlantic 3:429; 16:156–157; 20:201; 32:137, 138; 36:25; 43:243; 48:1565, 1567; 56:168, 169; 58:262; Indian 6:190; 31:63; 69:54; Red Sea 45:30; Pacific 3:430, 431; 4:129–130; 26:21; 27:282; 29:32; 33:24; 42:46; Mediterranean 56:167–168, 168–169, 169.

South African records:
NGY Samples. 32/30, 33/27, 34/23, 34/25: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 33/16, 34/16, 34/17, 34/19, 35/18, 35/19, 35/20, 36/18, 36/21: 150–0 m and 5–0 m.

Remarks: This widely distributed species is known under various synonyms from tropical and temperate regions. In South African waters the distribution points to a high degree of tolerance to varying oceanographic conditions.

Lycaea serrata Claus, 1879

World distribution: Atlantic 43:243; Indian type locality; Mediterranean 56:168.

South African records:
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/16, 35/17, 35/18: 150–0 m.

Remarks: A rare but distinctive species known from widely separated records in tropical and temperate regions. The South African records are the first from the south-eastern Atlantic.

Pseudolycaea pachypoda Claus, 1879

World distribution: Atlantic 16:160; 20:203; 32:139; 35:70; 46:216; Indian 64:24; Mediterranean 22:190; 56:169–170.

South African records:
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/17, 35/15: 150–0 m and 5–0 m.

Remarks: A relatively rare species known from records in tropical and temperate regions. It is new to the list of hyperiids from the south-eastern Atlantic.

Tryphana malmii Boeck, 1870

Synonymy: Shoemaker, 1945: 243.

World distribution: Atlantic 16:153; 32:136; 38:18; 43:243; 44:9; 48:1542; 56:171; 59:25; 60:21; Indian 44:9; 64:24; Pacific 3:428; 64:24.

South African records:
Siegfried, 1963. Sectors 1, 2, 3, 4.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/16, 34/17: 150–0 m and 5–0 m.

Remarks: An uncommon but widely distributed species known mainly from records in temperate areas. The South African records are all located in areas which experience the influx of Atlantic waters.

Family **Brachyscelidae** Stephensen, 1923

Brachyscelus crusculum Spence Bate, 1861

Synonymy: Shoemaker, 1945: 243.

World distribution: Atlantic 3:432; 5:292; 16:153, 154; 17:196–197; 20:200; 32:140; 36:26; 40:223; 43:242; 44:10; 46:210; 48:1557; 50:41; 56:173; 58:262; 59:26; Indian 44:10; 62:160–161; 64:23; 69:54; Red Sea 45:32; Pacific 3:432; 24:490; 27:282; 29:32; 33:25–26; 41:45–46; 48:1547, 1548; Mediterranean 39:5–8; 56:172–173.

South African records:
Barnard, K. H., 1932. 33/16, 34/16.
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. More or less uniformly distributed in the waters off the south and east coasts of South Africa from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 34/16, 34/17, 35/15, 35/18, 35/19, 36/18, 36/19: 150–0 m and 5–0 m.

Remarks: A very widely distributed species known from both tropical and temperate areas. The distribution in South African waters points to a preference for subtropical or warm temperate conditions. The species within the genus are not, in many cases, adequately described and illustrated and Spence Bate's drawings of the type of this, the most common species, are totally inadequate. A revision of the genus is urgently required.

Brachyscelus rapacoides Stephensen, 1926

World distribution: Atlantic 35:70; 36:26; Indian 64:24; Pacific 3:432; 33:27; Mediterranean 56:179.

South African records:
NGY Samples. 31/29, 31/30, 34/25: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.

Remarks: A rare species known from widely separated records in tropical and temperate areas. The distribution in South African waters seems to indicate a slight preference for tropical or subtropical conditions.

Brachyscelus rapax (Claus, 1871)

Synonymy: Stephensen, 1926: 250.

World distribution: Atlantic 5:291; type locality.

South African records:
Claus, 1871, according to Stebbing, 1910. 34/18.

Remarks: This species has only been recorded from the South Atlantic. Its status must remain doubtful until the type specimen(s) is re-examined and its relation to the other species of the genus clarified.

Thamneus platyrrhynchus Stebbing, 1888

Synonymy: Barnard, K. H., 1932: 293.

World distribution: Atlantic 5:293; 16:154; 17:197; 32:154; 44:10; 46:210; 56:180; Indian 6:191; 69:54; Pacific 48:1562; Mediterranean 56:180.

South African records:
Siegfried, 1963. Sector 4.
Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 34/17, 35/20: 150–0 m and 5–0 m.

Remarks: A relatively uncommon but widely distributed species known from records in tropical and temperate areas. The distribution in South African waters seems to be linked to waters of Atlantic origin.

Family **Oxycephalidae** Spence Bate, 1862

Calamorhynchus pellucidus Streets, 1878

Synonymy: Fage, 1960: 31.

World distribution: Atlantic 3:434; 17:202; 21:31; 32:164; 43:251; 46:198, 200; 48:1602; 51:481; 56:190; Indian 21:31; Pacific 3:434; 14:387; 21:31; 34:371; Mediterranean 21:31; 56:190.

South African records:
Fage, 1960. 24/38, 25/36, 34/27: 300–0 m, 200–0 m, 150–0 m and 50–0 m.
NGY Samples. 34/26: 100–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1962. 33/16, 150–0 m.

Remarks: An uncommon but widely distributed species recorded from tropical and temperate areas. The distribution in South African waters suggests a fairly high degree of tolerance to widely varying oceanographic conditions.

Cranocephalus scleroticus (Streets, 1878)

Synonymy: Fage, 1960: 72.

World distribution: Atlantic 21:72; 32:167; 35:80; 36:30; 43:251–253; 46:193; 56:199; Indian 21:72; 69:55; Pacific 21:72; 27:282; 34:370; Mediterranean 17:202; 21:72; 56:199.

South African records:
Fage, 1960. 25/36, 29/32, 36/21: 200–0 m and 100–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.

Remarks: A widely distributed but relatively uncommon species that is known mainly from tropical areas. The distribution in South African waters seems to confirm the preference for tropical conditions.

Glossocephalus milne-edwardsi Bovallius, 1887

Synonymy: Fage, 1960: 83.

World distribution: Atlantic 21:87; 35:79; 43:253; 46:196; Indian 6:193; 7:485; 19:221; 21:87; 69:237; Pacific 4:131–132; 21:87; 34:371; Mediterranean 21:87; 17:200.

South African records:
Barnard, K. H., 1940. 29/31, surface.
Fage, 1960. 24/38, 34/27, 35/23: 300–0 m, 250–0 m and 50–0 m.

Remarks: The species is known mainly from the tropical areas of the oceans. The *Dana* expeditions found it to be most abundant in the Indian ocean. The records from South African waters tend to confirm a preference for tropical conditions.

Leptocotis tenuirostris (Claus, 1871)

Synonymy: Fage, 1960: 37.

World distribution: Atlantic 3:435; 5:296; 17:163; 21:40; 32:168; 36:28; 43:253–255; 46:203, 204, 205; 56:191; 58:264; Indian 6:194; 19:217–218; 31:40; 62:160–161; 69:55; Pacific 3:435; 4:132; 19:217–218; 21:40; 27:282; 29:32; 34:372; 48:1596; 62:58.

South African records:
Fage, 1960. 24/33, 25/36, 29/31, 31/30, 34/27, 35/23, 36/21: 300–0 m and 100–0 m.
NGY Samples. 30/31, 30/32, 31/29, 31/30, 32/29, 32/30, 33/27, 33/28, 34/23, 34/25, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 35/17, 150–0 m.

Remarks: A very widely distributed species known mainly from tropical areas. The tropical nature of the species is emphasized by the distribution in South African waters being biased in favour of the waters off the south and east coasts.

Oxycephalus clausi Bovallius, 1887

Synonymy: Fage, 1960: 20.

World distribution: Atlantic 3:433; 5:294; 7:485; 16:161; 17:200; 18:516; 21:21; 32:163; 36:29; 43:251; 44:10; 46:181; 48:1582; 56:189; Indian 6:192; 7:485; 19:212; 21:21; 31:65; 44:10; 52:11; 69:55; Red Sea 15:5, 6, 7; Pacific 4:130; 14:387; 21:21; 34:367; 48:1584; Mediterranean 56:189.

South African records:
Stebbing, 1924. 29/31.
Barnard, K. H., 1932. 33/16.
Barnard, K. H., 1940. 29/31, 33/25, 34/18: surface.
Fage, 1960. 24/38, 25/36, 29/31, 29/32, 30/33, 31/30, 35/23, 36/21: 300–0 m, 200–0 m and 100–0 m.
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Records. More or less uniformly distributed in the waters off the south and east coasts of South Africa from Durban to Cape Seal: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/32, 26/33, 26/34, 26/35, 26/36: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 32/14, 32/16, 33/15, 33/16, 34/15, 34/17, 35/15, 35/16, 35/17, 35/19, 35/21, 36/18, 36/21, 37/21: 150–0 m and 5–0 m.
As *Oxycephalus tuberculatus* Spence Bate, 1862. Spence Bate, 1862, according to Stebbing, 1910. 34/18.

Remarks: A very widely distributed species known from tropical and temperate regions. The distribution in South African waters confirms the wide tolerances of the species. In the NGY samples the species was most abundant in the upper five metres of the water strata.

Oxycephalus latirostris Claus, 1879

Synonymy: Fage, 1960: 26.

World distribution: Atlantic 21:26; 44:10; Indian 7:485; 21:26; Pacific 21:26; 34:367; Red Sea 45:32.

South African records:
Barnard, K. H., 1940. 29/31, surface.
Fage, 1960. 24/38, 25/36, 29/31, 34/27, 35/23: 300–0 m, 250–0 m, 200–0 m and 100–0 m.
Siegfried, 1963. 32/13, 150–0 m.
NGY Samples. 32/30, 34/23, 34/25: 150–0 m.

Remarks: An uncommon species known from widely separated records, mainly in tropical areas. The distribution in South African waters, biased in favour of south and east coast waters, tends to confirm the preference for tropical conditions.

Oxycephalus piscator Milne-Edwards, 1830

Synonymy: Fage, 1960: 14.

World distribution: Atlantic 5:294; 16:160; 20:201; 21:14; 32:163; 36:29; 43:246–251; 46:180; 56:187; Indian 21:14; Pacific 3:433; 21:14; Mediterranean 21:14; 56:187.

South African records:
Fage, 1960. 24/38, 25/36, 27/33, 34/27, 35/23: 300–0 m, 200–0 m, 100–0 m and 50–0 m.
NGY Samples. 30/32, 33/28: 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34, 26/35: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 35/15, 35/16, 35/18: 150–0 m.

Remarks: A relatively uncommon though widely distributed species known mainly from records in tropical regions. The slightly biased distribution in South African waters tends to support a preference for tropical conditions.

Rhabdosoma brevicaudatum Stebbing, 1888

Synonymy: Fage, 1960: 104.

World distribution: Atlantic 3:436; 16:163; 17:203; 20:203; 21:108; 43:255; 48:1614; Indian 62:160–161; Pacific 21:108; 29:32; Mediterranean 21:108; 56:205.

South African records:
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/17, 150–0 m.

Remarks: This relatively uncommon species appears for some unknown (? biological) reason to be confined mainly to the tropical areas of the Atlantic and Pacific oceans. The IIOE record is the first from the south-west Indian ocean and the Indian ocean as a whole.

Rhabdosoma minor Fage, 1954

World distribution: Atlantic 21:108; Indian 21:108; Pacific 21:108.

South African records:
Fage, 1960. 24/38, 25/36, 28/33, 29/31, 34/27, 36/21: 300–0 m, 200–0 m and 100–0 m.
NGY Samples. 30/31, 34/25: 150–0 m.

Remarks: This species is known almost exclusively from the records of the *Dana* expeditions (Fage, 1960). Its distribution is centred on the Indian ocean, mainly in the tropical areas.

Rhabdosoma whitei Spence Bate, 1861

Synonymy: Fage, 1960: 6.

World distribution: Atlantic 3:436; 5:296; 17:203; 20:203; 21:102; 36:31; 43:255; 44:10; 46:209; 49:370; 56:207; Indian 6:193; 7:486; 21:102; 44:10; 46:209; 69:55; Pacific 4:132; 32:222; 21:102; 27:282; 34:373; Mediterranean 21:102.

South African records:
Barnard, K. H., 1940. 29/31, surface.
Fage, 1960. 25/36, 29/31, 35/23: 200–0 m, 100–0 m and 50–0 m.
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 34/23, 34/25: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/17, 35/17, 35/19, 36/19: 150–0 m and 5–0 m.

Remarks: This, the most common of the species of *Rhabdosoma*, is very widely distributed but recorded mainly from tropical and subtropical areas. In South African waters the species is widely distributed but is not common enough to permit amplification of the above statements.

Simorhynchotus antennarius (Claus, 1871)

Synonymy: Fage, 1960: 11.

World distribution: Atlantic 3:433; 17:160; 21:11; 23:300; 32:161; 36:28; 44:10; 46:211; 48:1575; 56:185; Indian 6:191; 21:11; 31:64; 44:10; Pacific 3:433; 4:130; 21:11; 54:366; Mediterranean 21:11; 56:185.

South African records:
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 30/32, 32/29, 33/23, 34/23, 34/25, 35/26: 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 34/17, 35/18, 35/19, 35/20, 36/18: 150–0 m and 5–0 m.

Remarks: A widely distributed species apparently with a high degree of tolerance to varying oceanographic conditions, many of the records coming from tropical areas. In South African waters the distribution is decidedly biased in favour of areas influenced by tropical and subtropical oceanographic conditions.

Streetsia challengeri Stebbing, 1888

Synonymy: Fage, 1960: 51.

World distribution: Atlantic 3:435; 5:295; 16:161; 17:203; 21:51; 32:165, 166; 43:255; 44:10; 46:184, 187; 56:195; 58:263; Indian 6:192; 7:486; 19:219; 21:51; 69:55; Pacific 3:435; 14:387–388; 21:51; 26:19; 34:369; 48:1606; Mediterranean 17:203; 21:51; 56:194–195.

South African records:

Barnard, K. H., 1932. 29/14, 200–0 m.

Fage, 1960. 24/38, 25/36, 28/33, 29/31, 29/32, 34/27, 35/23, 31/14: 300–0 m, 250–0 m, 200–0 m and 100–0 m.

NGY Samples. 30/32, 31/29, 31/31, 33/27, 35/26: 150–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1962, 1963. 32/16, 34/16, 34/17, 35/15: 150–0 m and 5–0 m.

As *Streetsia pronoides* (Bovallius, 1887). Barnard, K. H., 1940. 29/31, surface.

Siegfried, 1963. Sectors 2, 3, 4.

Remarks: A very common and widely distributed species whose abundance has been grossly underestimated if the records of the *Dana* expeditions are considered. The bias in the world distribution in favour of tropical areas is duplicated to some extent by the distribution in South African waters.

Streetsia mindanaonis (Stebbing, 1888)

Synonymy: Fage, 1960: 45.

World distribution: Atlantic 21:49; Indian 21:49; Pacific 21:49; 48:1599.

South African records:

Fage, 1960. 24/38, 28/33, 29/31: 300–0 m, 200–0 m and 100–0 m.

NGY Samples. 30/32, 32/30, 34/25, 35/26: 150–0 m and 5–0 m.

Remarks: A rare but widely distributed, distinctive species known from records in tropical and temperate regions. In South African waters it exhibits a remarkable distribution, failing to penetrate waters west of Cape Agulhas. Further information on the species is required before this can be explained.

Streetsia porcella (Claus, 1879)

Synonymy: Fage, 1960: 63.

World distribution: Atlantic 3:435; 5:295; 21:63; 32:166; 36:29; 43:255; 46:188; 56:193; Indian 6:192; 21:63; 62:160–161; Pacific 3:435; 21:63; 27:282; 29:32; 34:370; 48:1589; 62:58; Mediterranean 21:63; 56:192–193.

South African records:

Fage, 1960. 24/38, 25/36, 28/33: 200–0 m and 50–0 m.

NGY Samples. 30/31, 150–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/35, 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 37/21, 5–0 m.

Remarks: A relatively uncommon species which is widely distributed, mainly in tropical regions. Like the previous species its distribution in South African waters is biased in favour of areas east of Cape Agulhas, suggesting a preference for tropical conditions although the abundance is not great enough to provide proof of this.

Streetsia steenstrupi (Bovallius, 1887)

Synonymy: Fage, 1960: 42.

World distribution: Atlantic 5:296; 21:45; 44:10; Indian 21:45; Pacific 21:45; 48:1593.

South African records:
Fage, 1960. 29/32, 31/30, 34/27, 35/23, 31/14: 300–0 m, 200–0 m and 100–0 m.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. 30/32, 32/30, 34/27: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/16, 34/16, 35/17, 37/21: 150–0 m and 5–0 m.

Remarks: A rare but widely distributed species that has been recorded mainly from tropical areas. In South African waters the distribution appears to indicate a preference for subtropical rather than tropical conditions.

Family **Parascelidae** Bovallius, 1887

Parascelus edwardsi Claus, 1879

Synonymy: Shoemaker, 1945: 260.

World distribution: Atlantic 20:202; 35:72; 36:31–32; 43:260; 44:10; 46:264; 56:211; Indian 44:10; 62:160–161; Red Sea 45:42; Pacific 4:132; 29:32; 33:36; 42:46; 48:1500; 62:48, 58; Mediterranean 56:211.

South African records:
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 30/31, 30/32, 32/29, 33/29, 34/23, 34/25, 34/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/32, 26/35: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 34/17, 35/17, 35/18, 35/19, 36/19, 36/20, 37/21: 150–0 m and 5–0 m.

Remarks: A relatively uncommon but widely distributed species known from records in tropical and temperate areas. The distribution in South African waters confirms the high degree of tolerance of the species to widely varying oceanographic conditions.

Parascelus typhoides Claus, 1879

World distribution: Atlantic 5:299; 16:151; 43:260; 46:262; Indian 62:160–161; Red Sea 45:43; Pacific 25:186; 26:21; 27:282; 29:32; Mediterranean 56:211.

South African records:

NGY Samples. More or less uniformly distributed in the waters off the south and east coasts of South Africa from Durban to Cape Seal: 150–0 m and 5–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/34, 26/35: 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 33/15, 33/16, 34/16, 34/17, 35/17, 35/18, 35/19, 37/18, 37/21: 150–0 m and 5–0 m.

Remarks: Like the previous species this species is widely distributed but relatively uncommon. It is recorded from tropical and temperate areas. The distribution in South African waters confirms that it is highly tolerant of widely varying oceanographic conditions.

Schizoscelus ornatus Claus, 1879

World distribution: Atlantic 16:151; 36:33; 56:208; 58:261; Indian 44:11; Pacific 48:1506; Mediterranean 56:208.

South African records:

Siegfried, 1963. 34/19, 5–0 m.

NGY Samples. 29/31, 30/31, 32/30, 34/25: 5–0 m.

Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 33/18, 36/20: 5–0 m.

Remarks: A rare species known from records in tropical and temperate regions. The South African records are remarkable in that, with the exception of the IIOE record, they all were taken in surface tows. The records also suggest a preference for subtropical and tropical conditions.

Thyropus sphaeroma (Claus, 1879)

Synonymy: Shoemaker, 1945: 260.

World distribution: Atlantic 3:437; 5:299; 36:33; 43:260; 44:11; 46:259; 48:1495; Indian 6:197; 44:11; Pacific 27:282; 33:36.

South African records:

Siegfried, 1963. Sectors 1, 2, 3, 4.

NGY Samples. 29/31, 30/30, 30/32, 31/29, 31/30, 32/30, 34/23, 34/25, 34/26, 35/26: 150–0 m and 5–0 m.

Division of Sea Fisheries Routine Programme Cruises, 1963. 34/18, 35/18: 150–0 m and 5–0 m.

Remarks: An uncommon species known from widely separated records in temperate and tropical areas. The species is widely distributed in South African waters, suggesting a fair degree of tolerance to varying oceanographic conditions. A preference for waters of subtropical origin is indicated by the pattern of distribution.

Family **Platyscelidae** Spence Bate, 1862

Amphithyrus bispinosus Claus, 1879

Synonymy: Spandl, 1927: 247.

World distribution: Atlantic 3:438; 16:150–151; 32:159; 35:72; 36:33; 43:259; 44:11; 46:247; 48:1491; 56:225; Indian 6:196; Pacific 3:438; 27:283; 33:44; Mediterranean 56:225.

South African records:
Siegfried, 1963. 34/17, 5–0 m.
NGY Samples. 30/30, 30/31, 30/32, 31/29, 31/30, 32/28, 32/29, 32/30, 33/28, 34/23, 34/25, 34/27, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 34/16, 35/15, 35/17, 36/21, 37/18, 37/21: 150–0 m.

Remarks: A widely distributed species recorded mainly from the warmer areas of the oceans. The distribution in South African waters is decidedly biased in favour of waters off the south and east coasts, suggesting a preference for tropical and subtropical conditions.

Amphithyrus glaber Spandl, 1924

World distribution: Atlantic 3:438; 35:72; Red Sea 45:40; Pacific 27:283; 33:45.

South African records:
NGY Samples. 30/30, 30/31, 30/32, 31/29, 32/27, 32/29, 32/30, 34/23, 34/25, 34/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 33/16, 34/16, 35/15, 35/18, 35/19, 37/21: 150–0 m.

Remarks: A rare species known from widely separated records, mainly in tropical areas. Like the previous species, its distribution in South African waters is biased in favour of areas influenced by waters of tropical and subtropical origin.

Amphithyrus sculpturatus Claus, 1879

Synonymy: Spandl, 1927: 250.

World distribution: Atlantic 32:158; 36:34; 44:11; 56:226; Indian 6:196; 44:11; Pacific 33:44–45; 42:58; 48:1488; Mediterranean 56:226.

South African records:
Siegfried, 1963. Sectors 1, 2, 3.
NGY Samples. 30/31, 30/32, 32/29, 32/30, 34/23, 34/25, 34/27: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/17, 34/19, 35/18, 35/19: 150–0 m and 5–0 m.

Remarks: An uncommon but widely distributed species recorded mainly from tropical areas. The relationship between this species and the closely related *glaber* has not been clearly defined and has led to the latter being given subspecific rank. In the opinion of the present author, the constant characteristics of the fourth pereiopod of *A. glaber* demonstrated by the present study justify its retention of specific rank.

The distribution in South African waters confirms the preference for subtropical and tropical conditions common to species of *Amphithyrus*.

Amphithyrus similis Claus, 1879

Synonymy (discussed): Spandl, 1927: 250.

World distribution: Atlantic 43:259; 56:225; Red Sea 45:39; Mediterranean 56:225.

South African records:
NGY Samples. 30/31, 150–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 26/34: 300–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/17, 34/16, 34/17, 35/15: 150–0 m and 5–0 m.

Remarks: A very rare but distinctive species known mainly from subtropical areas. The abundance in South African waters does not furnish proof of any particular preferences but the distribution suggests a reasonable degree of tolerance to varying oceanographic conditions and a possible preference for subtropical conditions.

Hemityphis rapax (Milne-Edwards, 1830)

Synonymy: Shoemaker, 1945: 259.

World distribution: Atlantic 5:299; 16:149; 20:201; 32:160; 35:71; 36:35; 43:259; 44:11; 46:233, 237; 48:1475; 51:478; 56:220; 58:259; Indian 6:195; 48:1475; 69:53; Pacific 3:437; 33:38; 64:26; Mediterranean 56:220.

South African records:
Barnard, K. H., 1932. 34/16.
Siegfried, 1963. Sectors 2, 3, 4.
NGY Samples. 29/31, 30/31, 30/32, 31/31, 32/29, 32/30, 34/26, 34/27, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/15, 32/16, 33/16, 34/16, 34/17, 35/15, 35/18, 35/19, 36/18, 37/18: 150–0 m and 5–0 m.
As *Hemityphis tenuimanus* Claus, 1879. Claus, 1879 according to Stebbing, 1910. 34/18.

Remarks: A very widely distributed species known from temperate and tropical areas. The same wide tolerances are reflected in the distribution in South African waters.

Paratyphis maculatus Claus, 1879

Synonymy: Shoemaker, 1945: 259.

World distribution: Atlantic 3:439; 16:150; 35:72; 36:36; 43:260; 44:11; 51:478; 56:223; 58:259; Indian 6:195; Pacific 3:439; 27:283; 33:39.

South African records:
Claus, 1879 according to Stebbing, 1910. 34/18.
Siegfried, 1963. Sectors 2, 3.
NGY Samples. 30/31, 30/32, 31/30, 31/31, 32/29, 32/30, 33/28, 34/25, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 34/17, 35/15, 35/16, 35/18, 35/19: 150–0 m and 5–0 m.

Remarks: A relatively uncommon species which is widely distributed in temperate and tropical areas. The distribution in South African waters suggests that the preferences of the species lie nearer to the subtropical–warm temperate rather than the tropical range of oceanographic conditions.

Paratyphis promontorii Stebbing, 1888

World distribution: Atlantic 20:202; 32:157; 48:1478; 56:223.

South African records:
Stebbing, 1888. 35/18, surface.
NGY Samples. 30/31, 31/30, 31/31, 32/30, 33/28, 34/23, 34/25, 34/26, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/16, 34/16, 34/17, 35/15, 35/19, 36/18, 36/19: 150–0 m and 5–0 m.

Remarks: A rare species previously only recorded from the Atlantic in tropical and temperate areas. The NGY records are the first from the Indian ocean.

A preference for waters of subtropical origin is suggested by the distribution pattern of the species in South African waters.

Paratyphis spinosus Spandl, 1924

World distribution: Atlantic 20:202; 36:36; Red Sea 45:36; Pacific 3:439; 33:40; Mediterranean 56:221.

South African records:
NGY Samples. 32/29, 32:30, 34/23, 35/25, 35/26: 150–0 m.

Remarks: A rare species known mainly from widely separated records in tropical and subtropical regions. There is no doubt (as Barnard (1930) suggested) that *P. clausii* Stephensen, 1926 is synonymous with this species.

The NGY records are the first from South African waters and the south-west Indian ocean in particular.

Platyscelus ovoides (Claus, 1879)

Synonymy: Shoemaker, 1945: 256.

World distribution: Atlantic 5:297; 17:200; 32:157; 36:36; 43:256; 44:11; 46:228; 56:213–214, 218; 59:25; Indian 6:194; 62:160–161; 69:54; Pacific 25:192; 27:283; Mediterranean 17:200; 56:213, 218.

South African records:
Barnard, K. H., 1932. 34/16.
Siegfried, 1963. Sectors 2, 3, 4.

NGY Samples. 30/32, 31/30, 34/25, 34/26, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/34, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 37/21: 150–0 m.

Remarks: A widely distributed though not very common species, recorded mainly from tropical areas. Although not common in South African waters, the species exhibits a marked degree of tolerance to varying oceanographic conditions.

Platyscelus serratulus Stebbing, 1888

Synonymy: Shoemaker, 1945: 259.

World distribution: Atlantic 5:298; 16:149; 17:200; 20:203; 35:71; 36:37; 43:259; 44:11; 48:1470; 56:216; Indian 44:11; 62:160–161; Red Sea 45:35; Pacific 3:437; 14:385–386; 26:22; 27:283; 29:32; 33:37; 42:51; Mediterranean 37:149; 56:215–216.

South African records:
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 33/28, 35/26: 5–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 32/14, 32/16, 33/16, 34/17, 35/17, 35/18: 150–0 m and 5–0 m.

Remarks: Like the previous species, the world distribution of this species is biased in favour of tropical and subtropical areas. Although not common in South African waters, the species exhibits a preference for waters of subtropical character.

Tetrathyrus forcipatus Claus, 1879

Synonymy: Shoemaker, 1945: 259.

World distribution: Atlantic 3:439; 16:150; 20:203; 35:72; 36:34–35; 43:259; 44:11; 46:241; 48:1485; 51:478; 56:224; Indian 6:195; 44:11; 48:1483; Red Sea 45:38; Pacific 3:439; 4:133; 29:32; 33:42–43; 42:54; 48:1483, 1484; Mediterranean 56:224.

South African records:
Claus, 1879 according to Stebbing, 1910. 34/18.
Siegfried, 1963. Sectors 1, 2, 3, 4.
NGY Samples. 30/31, 32/30, 34/23, 34/25, 34/26, 35/26: 150–0 m and 5–0 m.
Division of Sea Fisheries IIOE Cruise I. 26/33, 300–0 m.
Division of Sea Fisheries Routine Programme Cruises, 1963. 33/15, 33/16, 34/16, 34/17, 35/18, 35/19, 35/20: 150–0 m and 5–0 m.

Remarks: A very widely distributed species known mainly from tropical and subtropical areas. In South African waters the species is most abundant in waters of a subtropical character.

SUMMARY

Keys to the genera and species, and a distribution list of the 105 recorded species of South African hyperiid Amphipoda, have been compiled. Twenty-six species are new records from South African waters, 20 are additions to the west coast fauna, 45 are additions to the south coast fauna and 39 are additions to the east coast fauna.

The majority of species represented are those that have preferences for oceanographic conditions of a tropical or subtropical nature.

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